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Calculation of the Regulated Margin for Fresh Milk Processors in Puerto Rico Suiza Dairy and Tres Monjitas



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I. EXECUTIVE SUMMARY

Fresh milk processor margins in Puerto Rico are regulated by the Dairy Industry Regulatory Office (acronym in Spanish, ORIL). ORIL is required by law to hold public hearings at least once a year to review milk prices at all levels.

As part of the public hearing process for 2005, calculations have been made for the processor margin applicable to Suiza Dairy Corporation (Suiza Dairy) and Tres Monjitas Inc. (Tres Monjitas). The processor margin has been calculated using as a baseline for determining costs the 2004 calendar year. Processors' margin is at a level of 37.6 cents per quart of fresh milk.

Figure 1 presents the summary of the estimates made in this study.

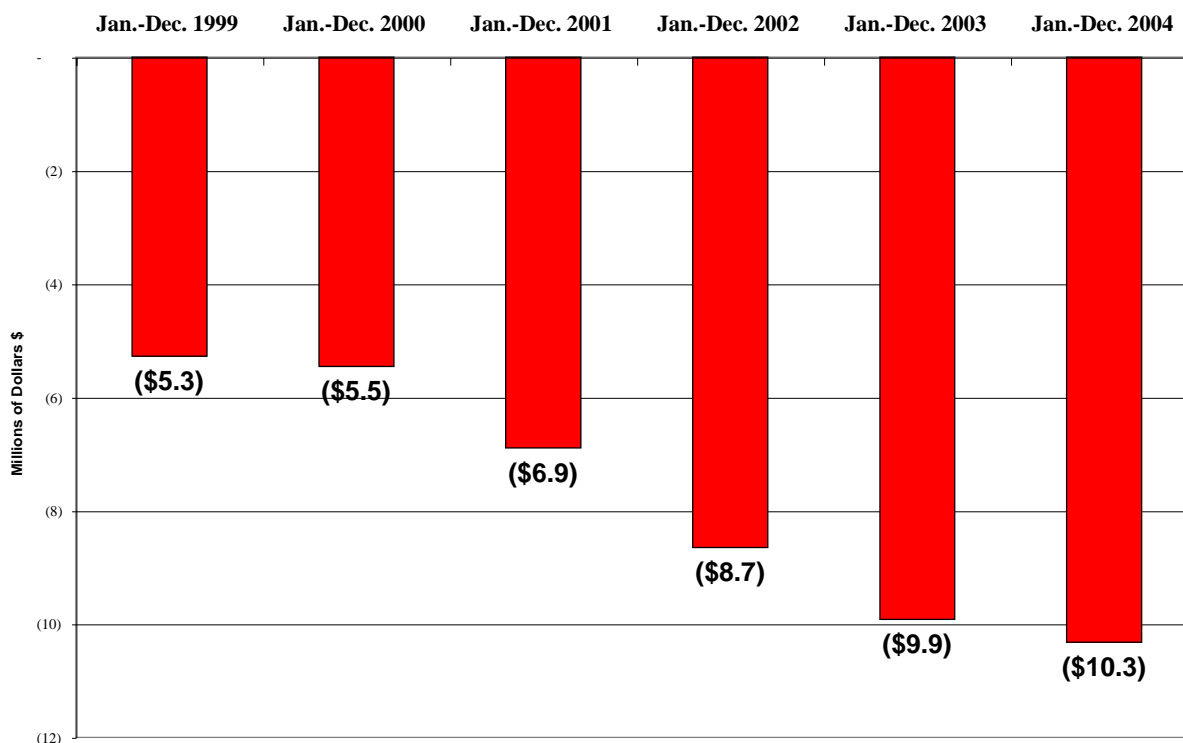
Figure 1: Summary of the Calculation of the Processor Margin, January-December 2004

<i>Parameters</i>		
Income Tax	(a)	3.90%
After-tax Rate of Return	(b)	14.36%
<i>Income Requirements Components</i>		
Costs (\$)	(c)	88,976,558
Net Equity (\$)	(d)	70,356,887
Pre-tax Rate of Return	(e)=(b)/[1-(a)]	14.94%
<i>Estimated Income Requirements</i>		
Return on Net Equity (annual) (\$)	(f)=(e)*(d)	10,513,266
Regulatory (\$)	(g)	-
Income Requirements (\$)	(h)=(c)+(f)+(g)	99,489,824
<i>Estimated Processor Margin</i>		
Volume (quarts)	(i)	264,574,384
Processor Margin (cents/quart)	(j)=(h)/(i)*100	37.60

This implies that the regulatory components of milk prices that are applied in the current regulation should be immediately revised, given that the current margin is approximately 29.11 cents per quart, which does not cover operating costs of the processors as shown in **Graph 1**¹. This graph shows the consolidated results of the processors' operations and it can be seen that they have incurred losses in the past six years that have increased persistently. The level of losses for 2004 is \$10.3 million. This trend will persist in the future as a consequence of the unequal competition with UHT milk, as will be explained below.

1 That is to say, the current margin does not allow processors to even obtain a reasonable return on the capital invested.

Graph 1: Results of Operations of Processors (Consolidated)



The financial situation of the processors is aggravated by the share of UHT milk in the fluid milk market. Processors of UHT milk pay a much lower amount for inputs than on average is received by dairy farmers, a difference supported by Suiza Dairy and Tres Monjitas, which pay an above-average amount. This translates into unequal competition between fresh milk and UHT milk, given that fresh milk processors support low prices for UHT milk processors.

Given that there is unequal competition between fresh milk and UHT milk, which is driving the industry to accumulate losses in the millions of dollars, an urgent solution is needed, because otherwise the industry will continue to accumulate losses perpetually until reaching insolvency. Therefore, the solution would imply not only approval of the margin in this study, without increasing fresh milk prices, and the implementation of regulatory measures that will eliminate unequal competition between fresh milk and UHT milk.

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II. Introduction

This report² has been drafted by Dr. Leonardo Giacchino of National Economic Research Associates, Inc. (NERA) and Dr. Jorge F. Freyre of Applied Research, Inc. at the request of Suiza Dairy and Tres Monjitas to be submitted to the Dairy Industry Regulatory Office (ORIL) of Puerto Rico as part of the process for determining fresh milk prices,³ in which the margin for the processors, Suiza Dairy and Tres Monjitas, is determined. This report presents the results with the information submitted by Suiza Dairy as of December 31, 2004 and by Tres Monjitas as of December 29, 2004.

A. Objective of the Report

The purpose of this report is to present the calculation of the processor margin for fresh milk in Puerto Rico that is applicable to the cases of Suiza Dairy and Tres Monjitas. This calculation was done according to the current regulatory framework in Puerto Rico and following the usual regulatory practices in the US. Furthermore, the results that were obtained will guarantee to fresh milk processors that they will be able to recover operating costs related to milk and a fair and reasonable profit margin.

B. Credentials

The following are the credentials of the experts.

1. Dr. Jorge F. Freyre


Dr. Jorge F. Freyre, Ph.D. is the President of Applied Research, Inc. He is also a distinguished professor at the Economics and Business Administration Department of the Inter American University of Puerto Rico and director of the IAU-Wharton Econometric Model.

Dr. Freyre has had an extensive career in Puerto Rico in which he has submitted several economic studies that cover a variety of industries. The following is a list of some of the projects in which he has participated:

- Calculation of the regulated margin for fresh milk processors in Puerto Rico, January 2004-June 2004 (2004);
- Calculation of the regulated margin for fresh milk processors in Puerto Rico, January 2003-June 2003 (2003);

2 This expert report has been drafted for the exclusive use of the Office of the Secretary of Agriculture, ORIL, Suiza Dairy, and Tres Monjitas until the date of the public hearing, and may not be distributed, totally or partially, to any person, whether an individual or a legal person, not related to such offices or companies without written authorization from Suiza Dairy, Tres Monjitas, and NERA.

3 ORIL organizes a public hearing every year to debate the level of fresh milk prices that apply to producers, processors, and distributors.

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- Calculation of the regulated margin for fresh milk processors in Puerto Rico, January 2002-December 2002 (2003);
- Study of the current economic situation of milk processing plants, January-June 2002 (2002);
- Study of the current economic situation of milk processing plants, January-June of 2001 (2001);
- Study of the current economic situation of milk processing plants (2000);
- Study of investment financing and the operating costs of the Natatorium for the Comisión Pro Sede Olimpiadas 2004 (1994);
- Study of the economic and financial viability of the Sports Palace for the Comisión Pro Sede Olimpiadas 2004 (1994);
- Study of the economic viability of the housing project of the Olympic Village for the Comisión Pro Sede Olimpiadas 2004 (1993);
- In-depth Study of the Pharmaceutical Industry of Puerto Rico for the Pharmaceutical Industry Association (1993);
- Study of projections of real income and employment, per sector for 2010, for the Environmental Quality Board (1990);
- Studies on the gasoline industry and projections of demand for the Puerto Rico Energy Office; and
- Several economic studies for Citibank from 1986 to 1993 including, among others:
 - Milk;
 - Coffee;
 - Alcoholic beverages;
 - Wholesale food distribution;
 - Wholesale meat products distribution;
 - Supermarkets;
 - Newspapers; and
 - Wholesale gasoline distribution.

Dr. Freyre has been an expert witnesses in several legal cases on issues related to unfair competition, monopolistic practices, company mergers, price discrimination, and predatory pricing practices. He has also been a consultant for numerous valuation projects for distribution lines, companies, and businesses.

Dr. Freyre holds a PhD and a MA in Economics from Yale University, and a JD degree from the University of Havana.




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2. Dr. Leonardo Giacchino

Dr. Leonardo Giacchino, Ph.D. is the Vice President of NERA. He specializes in regulated industries, for which he provides litigation and consulting services focused on design and estimates of prices, international arbitration, competition, business development, due diligence, regulatory strategies, market studies and valuations, cost methods, contract negotiations, policy recommendations, restructuring, privatization, rate of return, and expert testimony. Dr. Giacchino is a principal participant in NERA's growing presence in matters related to price determination and analysis in regulated industries in Latin America. He has directed dozens of projects and has participated in many others in Latin America (Argentina, Bolivia, Brazil, Colombia, Chile, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Dominican Republic, and Venezuela) and in other important markets (Germany, Australia, Canada, US, Spain, Hong Kong, Italy, New Zealand, the Netherlands, the United Kingdom, Russia, Singapore, and South Africa). In these projects he has worked for regulated companies, investors, governments, and the World Bank.

Dr. Giacchino has participated in a great number of projects since joining NERA. The following are some of the projects related to regulated prices that he has directed for NERA in Latin America:

- **Puerto Rico: Regulated Milk Prices.** Calculation of the regulated margin for fresh milk processors in Puerto Rico, January 2004-June 2004 (2004);
- **Puerto Rico: Regulated Milk Prices.** Preliminary injunction between milk processors in Puerto Rico and the Government of Puerto Rico as a result of the government failing to provide the opportunity to obtain a reasonable return (2004-currently in effect).
- **Puerto Rico: Regulated Milk Prices.** Calculation of the regulated margin for fresh milk producers in Puerto Rico, January 2003-June 2003 (2003);
- **Puerto Rico: Regulated Milk Prices.** Calculation of the regulated margin for fresh milk producers in Puerto Rico, January 2002-December 2002 (2003);
- **Mexico: Regulated Natural Gas Prices** Development of the methodology for determining the price for first-hand sales of natural gas in Mexico;
- **Argentina: Regulated Water Prices.** Estimated damages for a water distribution company given the impossibility of charging regulated prices in the Province of Buenos Aires (2001-2003);
- **Bolivia: Determination of Regulated Natural Gas Prices.** Study of the reference prices of natural gas for the electric power sector on behalf of the Comité Nacional de Despacho de Carga (2001);
- **Chile: Regulated Highway Prices.** The objective of the study was to advise the Chilean government on licensing and tolls for highways in the center of the country (1997);
- **Guatemala: Regulated Electricity Distribution.** Rate review for the Guatemala Electric Power Company - EEGSA (2002-2003);

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- **Mexico:** *Regulated Prices in the Oil Industry*. The purpose of the study was to determine viable alternatives for ethane, ethylene, and natural gas prices for the oil industry (1999-2000);
- **Peru:** *Regulated Price of Liquid Transportation*. Determination of the maximum transportation rates for OSINERG (2001);
- **Dominican Republic:** *Effects of Regulated Prices in the Electric Power Sector*. A study was done as part of the due diligence process for the World Bank (2001-2002); and
- **Venezuela:** *Privatization and Regulated Prices*. Design of the national gas distribution plan and regulatory integration for the privatization of the distribution systems (2000-2001).

In addition to his extensive experience in Latin America, Dr. Giacchino has directed and consulted in numerous projects related to regulated prices beyond the Region. For example, he designed natural gas rates in Spain, viability of rail systems in Hong Kong, and design of regulated prices transportation of liquids, oil, and jet fuel in South Africa, among others.

Before joining NERA, Dr. Giacchino worked as a Senior Economist in an oil company in Argentina, where he coordinated evaluations of bidding projects for oil fields, directed research in energy markets, and participated in planning the deregulation of energy markets in Argentina.


Dr. Leonardo Giacchino holds a PHD and an MA in Economics from Duke University and a degree in Economics from the Catholic University of Argentina.

C. Structure of the Report

The report is divided into five [sic] sections including the Executive Summary and the Introduction. The other four sections are as follows:

- **Section III** presents the procedure for calculating the fresh milk processing margin in Puerto Rico;
- **Section IV** describes the price increases set by ORIL to be effective May 5, 2005;
- **Section V** analyzes the adjustments made by ORIL to the information submitted by the processing plants in the most recent review; and
- **Section VI** presents the results of the calculation of the margin for fresh milk processing in Puerto Rico.

In addition, the following appendixes are included.

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- **Appendix A** contains a detailed analysis of the unequal competition that exists between fresh milk and UHT milk;
- **Appendix B** presents the formula for income requirements;
- **Appendix C** analyzes the experience with operator fees;
- **Appendix D** describes the regulatory framework of the fresh milk processing margin in Puerto Rico; and
- **Appendix E** presents the theoretical regulatory framework needed for any objective determination of regulated prices.



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III. Conceptual Framework

The financial outlook for milk processors is not promising. During recent years, sales of fresh milk have been decreasing while sales of UHT milk have been increasing during the same period. The current regulatory framework has allowed UHT milk to gain a larger share of the fluid milk market based on the low cost of its inputs, which is subsidized by fresh milk processors. **Appendix D** describes the Regulatory Framework of the margin of fresh milk processing in Puerto Rico

The purpose of this section is to describe the conceptual framework of the procedure for calculating the regulated margin of fresh milk producers in Puerto Rico. The procedure consists of following the three rules for establishing regulated prices described in **Appendix E.A.**

The methodology is the same as that used in regulatory processes for regulated industries in the US that use the cost of the service to regulate prices. This regulatory framework is currently in effect in Puerto Rico to establish the margin for the processors that pay prices set by the ORIL for their inputs and to sell their products under the restriction imposed by maximum sales prices. The margin is determined based on a return on net equity.

A. Estimated Income Requirements

There are several stages for estimating income requirements once a base year has been established for the estimate, as explained below.

1. Economic Equation for Income Requirements

Income requirements consist of an estimate of an appropriate income level that investors should receive for having invested capital in the processing of fresh milk. The economic equation for income requirements related to the processing margin of fresh milk in Puerto Rico is similar what is used in other regulated industries in the US, (see **Appendix B**).


The following formula illustrates the equation for income requirements:

$$RI_{ME} = GO_{ME} + TR_{ME} \cdot NW_{ME}$$

Where,

- RI_{ME}: Income requirements for processors;
- GO_{ME}: Operating expenses of the processors;
- TR_{ME}: After-tax rate of return for a company in the fresh milk processing segment;
and
- NW_{ME}: Net equity of the fresh milk producers.

Operating expenses are simply the uncaptialized costs that the company incurs in providing the service. They include operating and maintenance expenses, administrative expenses, depreciation, and financial expenses.

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The rate of return represents the cost of capital of the company itself (equity). In order for the company to build income requirements that compensate investors for the opportunity cost of capital, all relevant income taxes should be included in the calculation. This means that the rate of return could be calculated on an after-tax basis, making an upward adjustment to the opportunity cost of capital, to consider income tax payments. Multiplying the rate of return by net worth would provide the company with the opportunity to recover its cost of capital.⁴ In Puerto Rico, the rate of return includes taxes.

Finally, “Net Worth” is equivalent to the net equity of the processor.

This equation is consistent with the theoretical economic equation applied for estimating regulated prices when companies do not finance their capital contributions (that is to say, capitalization of the company only includes equity for as long as long-term debt is zero). **Appendix B** shows the correspondence between the theoretical equation and the equation that is applied in Puerto Rico.

2. Costs

An important part of the income requirements is the recovery of operating costs that are necessary for processing milk. With regard to costs, the following are the most important items address in the review:

1. Allocation of Indirect Costs;
2. Surplus;
3. Packaging Costs; and
4. Professional Fees.

The following are the criteria for treating each of these.


a. Allocation of Indirect Costs

Indirect costs are common costs for more than one service or product. Goodman defines them as follows:

“When a cost cannot be allocated directly to a product or service for accounting or reporting purposes – and in some cases for purposes of rate cases– it is considered to be a ‘combined’ cost or ‘common’ cost or ‘indirect cost’”.⁵

4 There is no undisputed standard for establishing a rate of return. A good discussion of the relevant considerations involved (economic practices and legal precedents in the United States) can be found in Kahn, Alfred E. (1988): “The Economics of Regulation,” Vol. 1, MIT Press: Cambridge, MA, Reprint, pages 42-54.

5 Goodman, Leonard Saul (1998): “The Process of Ratemaking,” Public Utilities Reports, Inc., Volume I, page 376.

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Direct costs, on the other hand, are costs that clearly identifiable and therefore may be neatly allocated to a given product or service. In contrast to this, indirect costs require an allocation process.

For the processors, Suiza Dairy and Tres Monjitas, there are indirect costs that are allocated among their operations. For example, in the case of Suiza Dairy, for which a regulatory audit was carried out, there are indirect costs between Suiza Dairy operations (Milk and Quik Sales) and Suiza Fruits. In particular, there are three categories of indirect costs: 1) Distribution; 2) Manufacturing; and 3) Administration. Suiza Dairy has adopted the following criteria for allocating indirect costs between Suiza Dairy (Milk and Quik Sales) and Suiza Foods (business units)⁶:

- Distribution: the allocation of total indirect expenses is done on the basis of the contribution of each business unit to total direct distribution expenses;
- Manufacturing: the allocation of total of indirect expenses is done on the basis of the volume manufactured for each business unit; and
- Administration: the allocation of total indirect expenses is done on the basis of the contribution of each business unit to total direct distribution expenses.

While direct costs for the allocation for distribution categories, processed volume is used for manufacturing. These criteria are reasonable for the allocation of indirect costs.

b. Surplus

Under the current regulatory scheme fresh milk producers make contributions that in the end benefit the production of UHT milk, precisely the good that substitutes fresh milk. These contributions are currently paid by the processor.

There is a kind of contribution, in addition to the contribution in the purchase price of the input, made by the processors for the production of UHT milk. The processors receive \$0.015 per quart from Indulac for transportation in the metropolitan area [of San Juan-TN.],⁷ while the real cost is approximately \$0.02 per quart, as reported by Suiza Dairy, so that they have to absorb the difference.

The surplus does not exist as a result of processors' actions, yet they must incur a cost for such. Therefore, the costs generated by these surpluses should be considered to be passthrough costs and not a penalty.

6 Tres Monjitas Management said they made their cost calculations following methodologies that are similar to those of Suiza Dairy.

7 ORIL (2005): "Resolución Sobre: Revisión del Precio de la Leche a Todos sus Niveles", [Resolution on Review of Milk Prices at all Levels, not available in English] April, page 7.

c. Packaging Costs

It was decided to select a cost category that represents a significant level of total expenses with a view to analyzing the level and comparing it with processor costs in other jurisdictions.

Consolidated plastic packaging costs amount to \$ 16,890,101 and represent 18.98 % of operating expenses and a cost per quart of 6.25 cents. This cost is much lower than the average cost of production reported in the industry in the US, which has a reported average cost of production of 10.02 cents per plastic container and 5.73 cents per quart-size milk carton,⁸ which translates into a weighted cost of \$9.77 based on the share of cartons and plastic containers for the total in Puerto Rico.

d. Professional Fees


One of the cost categories in which the ORIL and the processors differ is that of professional fees. While Suiza Dairy includes most of the services needed to supply milk in its corporate structure, Tres Monjitas operates part of its services at the level of its holding company. Both are common practices.

In the case of holding companies, it is normal to include operator's fees that cover services rendered by the holding company.⁹ All efficient and modern enterprises subcontract certain specialized services as needed. This allows for reducing operating costs, since it avoids hiring personnel that is only needed sporadically. Tres Monjitas obtains several professional services that are needed for an efficient operation. For example, the most common are the following:

- Implementation of efficient management procedures;
- Consulting on operational and regulatory matters;
- IT support;
- Milk processing technology transfer;
- Technical support;
- Facilitating access to financial markets, as well as guarantees in credit transactions and with vendors, providing payer credibility in all of their operations;
- Training for workers, operators, and management;

8 Erba, Eric M.; Aplin, Richard D.; and Stephenson, Mark W. (1997): "An Analysis of Processing and Distribution Productivity and Costs in 35 Fluid Milk Plants", Cornell Program on Dairy Markets and Policy, pages 16 and 18. Packaging costs in this study were converted to 2004 dollars by using the Producer Price Index of the U.S. Department of Labor. U.S. Department of Labor, Bureau of Labor Statistics; "Producer Price Indexes." URL: <http://www.bls.gov/ppi/home.htm>

9 See **Appendix C**.

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- Access to better conditions for acquiring hardware and software from national and international vendors; and
- Immediate financial support in adverse events.

3. Net Equity

Because the processing companies produce and sell a number of different products besides fresh milk, their assets and liabilities cover aspects that are unrelated to fresh milk. However, the companies have made efforts to isolate the fresh milk business from the other products and thereby contribute to the ORIL regulatory activities. These efforts are made in the correct direction for determining income requirements, since they separate regulated from unregulated activities.


Because of the losses that the processors have accumulated in recent years, the level of net equity has fallen. Since ORIL uses net equity to calculate the profitability of the regulated enterprises, the level is lowering every year as a result of the accumulated losses. This implies a doubly negative impact on the processors: the margin is insufficient, so that they accumulate losses and net equity is reduced, which increases the absolute return for the following period.

This is why it is essential to prevent penalizing the processors and adjust the net equity level. This adjustment is made by calculating a regulatory accrual. The calculation of the regulatory accrual consists of taking the following three steps annually until the ORIL determines a margin that will allow the processors to recover their costs and obtain a fair and reasonable return:

1. Estimating the implicit agreed profitability in the initial period;
2. Estimating current profitability; and
3. Accounting for the differences in an account titled "Regulatory Credit," which amount will be accumulated in an asset account in a way that will affect the net equity level and obtain a return on the opportunity cost. Also called "Regulatory Accrual," this account protects the equity level from the possible effects of losses or profits in excess of the permitted margins. For example, without this account, a loss in one year would reduce the equity of the following year, which would lower prices, since a principal component of the calculation of the price is the return calculated as a percentage of equity. This effect places a double penalty on the processors.

Total profit may differ at the end of the year for any of the following reasons:

- Differences between projection of volumes and observed levels of such;
- Differences between cost projections and observed levels of such; and

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- Exogenous changes not considered when the margins were projected. In the case of Puerto Rico, this mechanism is key for determining the processors' margin, making it necessary to employ it for the most recent period as well as for previous periods where there were differences between the levels of approved and observed profitability. The regulatory accrual should be recovered by the processors in a given period of years to be agreed on with ORIL through amortization, including the balance of the amortization in a depreciation account on the balance sheet.

For the purposes of calculating the margin for the next period, the regulatory accrual for 2002, 2003, and 2004 for the correct level of net equity is included/

4. Profitability Rate

The rate of profitability or cost of capital for a regulated company may be defined as the annual percentage that the company should receive to maintain its credit, pay a return to its owners, and ensure attraction of capital in an adequate proportion for meeting future needs.¹⁰

According to the results of the 2003 study presented by the expert witness in rates of return, Wayne P. Olson,¹¹ the after-tax rate of return to be applied to the processors' equity capital is 14.36% (without including the risk in Puerto Rico¹²).

B. Estimated Processor Margin

The purpose of the second set of rules is to establish objectively the way to estimate the regulated price based on income requirements. The case of the margins of fresh milk processors is very simple because the rules are focused on establishing a single variable (the volume of milk that corresponds to processing). This includes a definition of the loss of milk between producers and the processors, as well as other kinds of losses.

The following is the formula for calculating the estimated margin for fresh milk processors based on the costs incurred by them.

$$P_{ME} = RI_{ME} / V_{ME}$$


Where,

P_{ME} : Processor margin per quart;

10 Phillips, Charles F., Jr, (1993): "The Regulation of Public Utilities," Public Utility Reports Inc., Arlington, Virginia, page 357.

11 Affidavit of Wayne P. Olson, CFA, CPA, on behalf of Suiza Dairy Corp., August 26, 2003.

12 The rate of return used should include the difference in risk between the US and Puerto Rico, given that the rate calculated by Mr. Olson is for a business operating on the Continental US.

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RI_{ME} : Processors Income Requirements; and
V_{ME} : Volume of fresh milk sold to final consumers.


The volume used for this calculation is the sales volume observed during the 2004 calendar year, reduced by 2.06 %. The volume observed in the first 25 weeks of 2005 was used to estimate this reduction in sales. In the period previous to the price increase of May 2005 (the first 18 weeks of this year) the sales in relation to the same period of the previous year decreased by 0.96 %. On the other hand, in the period after the price increase until the twenty-fifth week of 2005, sales fell by 2.67% with regard to the same period of the previous year. Assuming that in the remaining period of the year sales will continue falling to the level observed from the time of the price increase, it is estimated that sales for the full year of 2005 will fall by 2.06% with regard to the full year of 2004.

This is the reason this study uses an estimated sales volume equal to that of the previous year, reduced by 2.06%, which is equivalent to the reduction of the period that was observed plus the estimated reduction for the rest of 2005.

C. Adjustment of Profitability

Finally, Puerto Rico could adopt a third set of rules that would afford the processors with the opportunity to obtain a fair and reasonable return even if there are increases in the cost of inputs during the year the rates are applied, such as the cost of resin, electric power, and fuel. This adjustment could be made by using mechanisms that are similar to those adopted by the milk industry regulator in Pennsylvania.¹³

13 Commonwealth of Pennsylvania, Milk Marketing Board, Order No. A-922, effective April 1, 2003 and Commonwealth of Pennsylvania, Milk Marketing Board, Order No. A-927, effective, July 1, 2004.

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IV. Impact of the May 5, 2005 Price Increase

ORIL has not taken regulatory measures to attempt to improve the current situation of the industry. On April 12, 2005, ORIL issued Administrative Orders and a Resolution that determined increases of the price of fresh milk at the consumer level, and also determining an increase in the margins of producers and processors. However, the measures that were taken did not resolve the crisis in the dairy industry, since UHT milk would be more competitive and could gain an even greater share in the market to the detriment of fresh milk. Thus, these measures could even worsen the current situation of the industry.

Consumer prices were increased from \$1.00 to \$1.05 per quart. The five-cent increase in the consumer sales price is a direct consequence of a similar increase in the wholesale sales price. In turn, the increase in the wholesale sales price is the result of the increase of the processor margin of one cent per quart and the increase of four cents per quart in the price of retained milk.

Assuming that there are no changes in costs and volumes, the increase in the price of retained milk implies an increase in the producers' margin of 2.28 cents per quart, an increase in the contribution to the Dairy Industry Development Fund (FFIL) of 0.5 cents per quart of retained milk, and also implies an increase in the reimbursement of costs of 1.22 cents per quart for the collection and transportation of the milk from the dairy farms to the processing plants. In addition, there is an increase in the cost of transportation paid by Indulac of 0.75 cents per quart of surplus milk.

According to the decision of the ORIL Administrator dated April 12, 2005, which came into effect during the liquidation period that began on May 5, 2005, the increase of 4 cents per quart in the price of milk retained by the plants for sale to consumers¹⁴ was distributed as follows:

1. Two (2) cents per quart of retained milk destined to milk producers. It should be noted, however, that from the beginning of 2005, by a decision of the Board of the Dairy Industry Development Fund (FFIL), the minimum guaranteed price for dairy farmers increased from 52 to 53 cents for produced milk. The guaranteed minimum price increased another two cents per quart, that is to a level of 55 cents per quart in the subsequent liquidations on May 5, 2005. Therefore, the currently guaranteed price for dairy farmers of 55 cents per quart is an increase of 3 cents per quart with regard to the guaranteed minimum price in calendar year 2004. On the other hand, historical experience shows that the average liquidation price

14 Although the Administrator's decision mentions milk sold to consumers, it should be understood that this is retained milk, since not all retained milk is sold to consumers, including the School Lunchrooms, because of shrinkage and deterioration. In FY 2004, the amount of retained milk reached 281,490,246 quarts, but after discounting the shrinkage and deterioration of 6,414,000 quarts in rounded numbers, only 275,076,246 quarts were sold to consumers, plus 198,000 quarts of the inventory at hand at the beginning of the year, for total sales of 275,274,000 quarts in rounded numbers - page 8 and Table 27, page 55 of the ORIL report.

in an annual period exceeds 0.3 to 0.4 cents per quart for the minimum guaranteed price, because of the bi-weekly periods of low surplus in which the liquidation price increased above the guaranteed minimum. Consequently, a guaranteed minimum price of 55 cents per quart is compatible with an average annual price of 55.3 to 55.4 cents per quart, which is an increase of almost 3 cents per quart above the average sales price of 52.53 cents per quart received by the producers, that the ORIL calculated for the July-June 2003-04 period in Figure A-1 of the of the most recent Comprehensive Study.”¹⁵

2. One half cent (0.5) cent per quart for an additional contribution to the Dairy Industry Fund.
3. One cent and a half (1.50) per quart for compensation for milk transportation expenses. Another Order issued by the ORIL Administrator, also dated April 12, 2005, provides that the plants will receive 1.50 cents per quart for collected and retained milk. In that Order, the ORIL administrator estimated that the plants received 0.277 cents for each quart of milk collected that is retained for pasteurization. Apparently this calculation is consistent with the experience in FY 2004, which is summarized on page 8 of the ORIL Annual Report. According to the report, the amount discounted from the producers for the transportation of milk amounted to \$782,857 for a level of 281,490,246 quarts of retained milk and milk for school lunchrooms, which results in an average cost of transportation of 0.278 cents, a figure that is practically identical to the estimate made by the ORIL Administrator. Therefore, based the data for FY 2004, the processors received an increase of 1.22 cents per quart in compensation for milk collected and retained. Furthermore, to the degree that the price paid to the producers for the retained milk increased to 1.50 cents per quart, the difference of 0.278 cents per quart of retained milk represents an additional payment for the producers in the biweekly periods in which the average liquidation price is above the minimum of 55 cents per quart.

A. Short-term Impact for Processors

The processors' consolidated losses reached 3.56 cents per quart in 2003. Evidently, they continue to be deprived of their right to obtain a fair and reasonable income.¹⁶ However, there are certain factors that have a negative impact on consolidated losses. The losses as of 2004 reached 3.83 cents per quart. If the same volume that was sold in 2004 is sold in 2005, the losses will be reduced

15 Office of Agricultural Statistics (2003): “Estudio Económico Exhaustivo de la Industria Lechera de Puerto Rico Fase Agrícola, 1997” [“Comprehensive Economic Study of the Dairy Industry of Puerto Rico Agricultura Phase, 1997, not available in English], August;

16 If the processors could sell the volume observed in 2003 at the news prices, their losses would decrease to 1.25 cents per quart.

for the remaining period of 2005, beginning on May 5, to 1.63 cents per quart.¹⁷ The volume of fresh milk continues to be affected by the trend of substituting fresh milk with UHT milk. For example, the following factors should be taken into account: fresh milk sales have declined since 2004 (Suiza Dairy sales volume decreased by 4.14% in 2004 while Tres Monjitas in the same period experienced a decrease of 4.09% in sales). In addition, the increase of 5% in the price of the milk resulted in an even greater fall in the demand, and contributed to the substitution trend as noted.

Finally, the progressive increases in the prices of inputs for fresh milk processing add to the growing costs of the processors. Taking these factors into account, we have estimated that the losses will be reduced from 4.63 cents in 2004-05 per quart to 3.32 cents per quart in 2005-06. In other words, the increase of the price of fresh milk will not eliminate the losses of the processors, it will only decrease them.

Consolidated losses of the processors reached 3.83 cents per quart in the 2004 calendar year. Based on the distribution structure of production and sales of milk in the most recent annual period in the official ORIL statistics (Fiscal year 2004), which should be similar to calendar year 2004, the result of the three Orders of the ORIL Administrator, dated April 12, 2005, regarding processing plant income are as follows:

1. An increase of one cent in the sales of retained milk sold to consumers.
2. An increase in the reimbursement of transportation costs, equivalent to 1.22 per quart of retained milk, that is equivalent to 1.25 cents per quart sold.
3. An increase of 0.75 cents per quart in the payments for transportation of surplus milk to INDULAC, equivalent to 0.204 cents per quart sold.

The reduction in processor losses is more apparent than real, before taking into account other negative factors that continue to affect the processors' operations. First of all, the reduction in the sales volume, associated with the 5% increase in the price of milk and the substitution of UHT milk for fresh milk that has not stopped. In addition, the increase in production costs, principally related to electric power, fuels, the resin for manufacturing plastic containers, and salary costs. Taking these factors into account, the losses of the processors, after rising to 4.63 cents per quart in the 2004-05 period will be maintained at level of 3.32 cents per quart in 2005-06, which is a level of losses fairly similar to that recorded in calendar year 2004 before the May 2005 increase in price.

¹⁷ It is assumed that the increase of the distributor margin is calculated on the volume sold and not on the purchase of retained milk, which implies that the net increase for the processors is 0.93 cents per quart.

B. Foreseeable Consequences of the Current Regulatory Framework

The May 5 increase in the price of fresh milk has not resolved the structural issues of the current regulatory framework. UHT milk continues to operate free from regulation and currently is in an even more advantageous situation to continue to absorb a share of the fluid milk market to the detriment of fresh milk. The increase in the margin received by the processors will decrease their losses, but will not eliminate them in the short term. The trend that has been observed in the losses will continue to increase until causing the eventual financial collapse of the processors.

If the current regulatory framework continues to be in effect and the artificial expansion of the UHT milk market continues, it is not difficult to predict the deterioration that will drive the industry to a crisis situation. In fact, the most salient symptom of the severe imbalance of the milk industry is the persistence of the surplus milk and the increasing transformation to UHT milk.


Appendix A includes the market simulation used to quantify the economic deterioration that the dairy industry will suffer under current conditions, which will cause the persistence of the substitutive trend. This Appendix also explains in detail the results of the model and the manner in which processors, dairy farmers, and Indulac will be affected.

1. Fresh Milk Processors

While UHT milk substitutes fresh milk at an annual rate of 0.5%, Suiza Dairy and Tres Monjitas accumulate losses of about \$26.5 million and \$14.6 million, respectively, in the period used in the simulation. In the case of latent substitution (1.5% annually), accumulated losses for Suiza Dairy reached approximately \$29.3 million, while Tres Monjitas losses were for \$16.6 million. Finally, in the scenario of accelerated substitution, Suiza Dairy and Tres Monjitas losses will reach \$31.7 and \$18.5 million, respectively.

Suiza Dairy and Tres Monjitas have had losses in each one of the projected years and in all scenarios. These losses increase in each period in relation to the previous period. **Graph 1** shows losses accumulated from 1999 to the present. The trend of growing accumulated losses continues into the period of the projection.

There is a serious possibility that the processors will fall into insolvency. Currently, the financial situation of the processors is uncomfortable. Current assets have decreased, current liabilities have increased, and the processors have had to apply for credit lines from banks in the financial market. The difference between current assets and current liabilities has become negative, which implies that working capital of the processors is likewise negative. There is no commercial activity that can continue to operate if they experience losses every year, while at the same time a trend that reduces the market is observed, making it harder to even cover overhead expenses.

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2. Dairy Farmers

For dairy farmers, Indulac has been contributing most of the liquidations for 2005¹⁸ in order to reach the guaranteed minimum price. The net increase for dairy farmers established in the ORIL Administrative Order is 2.28 cents per quart (an increase of four cents less 1.22 cents for transportation – 1.5 less 0.28 than what was being paid –less 0.5 for the FFIL)¹⁹ Given that most liquidations will continue to receive contributions from Indulac, the dairy farmer will only receive a two-cent increase per quart when surplus milk levels are high, and about 2.28 cents per quart in the liquidations with low levels of surplus milk.

Consequently, the aggregate results of the industry worsen throughout the period of the projection, as the level of substitution with UHT milk for fresh milk increases in the three scenarios.

3. Indulac

Indulac will increase its contributions to FFIL to ensure the guaranteed minimum price for dairy farmers. Considering that 22% of the surplus milk used in processing UHT milk, Indulac's contribution was about 11.6 cents per quart when the price of the retained milk was 62.125 cents. This level of contribution implied that the total cost of raw milk processed by Indulac amounted to 22.35 cents per quart (with the same 22% share, including transportation costs). With the new price of retained milk and the guaranteed minimum, Indulac's contribution would increase, since the guaranteed minimum increased by two cents, while the average will increase less than two cents given that the share of the retained milk is less than 100%.

18 Indulac has contributed to the Price Stabilization Fund (FEP) in all biweekly periods of 2005 except one.

19 In reality, the increase of the processor's margin is of .93 when shrinkage and deterioration of retained milk in processing fresh milk are taken into account.

Adjustments by ORIL to the Information Submitted by Processor Plants

V. Adjustments by ORIL to the Information Submitted by Processor Plants

Adjustments to the processors' cost items are frequently arbitrary, since no justification is presented to support them, thereby disregarding the regulatory principle of transparency. ORIL makes erroneous adjustments by comparing the financial statements of the two processors and not admitting in the base rate the costs per quart that for one of the processors may be higher than for the other. ORIL's justification in these cases is that certain costs should remain at comparable levels and should not show any significant variation between the two processors. However, these adjustments are incorrect, because the financial statements of the processors are not comparable.

The adjustments made by ORIL ignore the observed trends in costs. Variable costs of the processors have been rising in recent years, while the variable costs recognized by ORIL have been decreasing in the same period, contrary to the observed trend. All of these adjustments are eliminated from the base rate and consequently cannot be recovered by the processors even when these are real costs incurred by the processors in processing fresh milk.

ORIL introduced reductions of permitted costs for the processors without any supporting justification. Some of the reductions in packaging costs, shrinkage and deterioration, operator fees, and discounts and promotions were excluded in 2005 from the costs used in calculating the base rate of the processors without any supporting justification. The following were the reductions:

- Costs of Plastic Containers and Caps: ORIL has reduced the cost of acquiring plastic caps (a significant component of packaging costs) by Suiza Dairy, arguing that Tres Monjitas produces these caps at a lower cost. While in revising prices regulators may decide not to recognize costs when such are not prudent or are unjustified, ORIL has not shown that the Suiza Dairy purchase cost of caps is higher than the market price, relying on Tres Monjitas transfer prices, which do not necessarily represent the market price, to reduce that cost item.

In addition, in its evaluation of costs to determine prices, ORIL uses the calendar year 2003 (instead of 2004), without making adjustments that would allow for adjusting these historical costs to their current level. Thus, ORIL has ignored that the cost of resin has risen substantially in the past two years by calculating prices for 2005 based on costs that were observed in 2003. In a separate memorandum an adjustment mechanism is presented that ORIL should adopt to adjust the margin in response to variations in the cost of resin, electricity, and the fuel.

- Shrinkage: ORIL has not submitted technical arguments for limiting the acceptable percentage of shrinkage and deterioration in fresh milk processing.

Given that the infrastructure of the processing plants is different, standard regulatory practices should take into account such differences in determining whether limits to shrinkage and deterioration are necessary. In addition, the processors assert that their shrinkage levels compare favorably with those of other plants in US.

- Professional Services: In the 2005 price revision ORIL mentions that it adjusted the Tres Monjitas professional services costs to “reasonable” levels and compared them to Suiza Dairy’s relatively lower level. This is an example of the incorrect adjustments made by ORIL by comparing the costs of the two companies in which the lower cost is recognized. In this case the cost of professional services is not comparable, since the processors have different corporate structures. Suiza Dairy has a structure that meets all of its corporate needs, while Tres Monjitas belongs to a holding company (Empresas Fonalledas) that provides certain services for which Tres Monjitas must pay operator fees. Both practices are common.

ORIL should analyze both practices to determine which is the most efficient. As a regulatory agency, ORIL may decide to accept only the cost of the most efficient practices. However, ORIL cannot simply ignore the full amount of the operator fees paid in a holding company. Specifically, if ORIL wants to completely ignore the operator fees, it should recognize other costs that allowed Tres Monjitas to carry out all of its corporate services within the same company. **Appendix C** explains that the payment of operator fees is a common practice in the relationship between holding companies and subsidiaries; and

- Discounts on Sales: ORIL does not justify the way it does not admit most of the costs of discounts and promotions. In other jurisdictions, regulatory agencies recognize reasonable levels of discounts and promotion costs in price calculation, even when the company in question is a natural monopoly, such as an electric power distribution company, that does not have competition from other products. In the specific case of fresh milk, fresh milk competes under unequal circumstance with UHT milk, so that ORIL should recognize these costs, which will allow processors to promote the consumption of fresh milk.

Given that ORIL does not justify its decisions, it can hardly be expected that the processors operate and manage their costs efficiently, since they do not know which cost items will be permitted in the base rate and which will be excluded.

In addition, incorrect adjustments are made to processor income. Processor income is the product of the price multiplied by the volume of milk sold. ORIL overestimates the income of the fresh milk producers by artificially increasing at least one of these factors. On the one hand, ORIL does not subtract the returns of milk to Suiza Dairy. According to the Suiza Dairy accounting system, the volume of sales to supermarkets and other points of sales to consumers are accounted for without reducing



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the volume of milk that subsequently will be returned by the sales establishments. Considering that ORIL refuses to take into account these returns, income is overestimated by using in its calculations a volume that is increased by the volume of the returns. In other regulated industries the regulatory agencies allow companies to report commercial losses in providing services such as electricity, water, natural gas distribution, so that these costs may be included in the base rate to be used in calculating prices. For example, even when a natural gas distributor injects 100 MMSFD into the distribution system but only sells 94 MMSFD to its customers, regulatory agencies do not include the remaining 6 MMSFD in the calculation of regulated sales.

Furthermore, ORIL exaggerates the income of the processors by assuming that the milk sold to school lunchrooms is sold directly by the processors, while a significant volume of this milk is sold through agents. The sales price obtained directly by the fresh milk producers is higher than the sales price to agents. Consequently, this method overestimates total income, while ORIL penalizes processors for using agents that are regulated and licensed by the ORIL itself. In addition, when ORIL takes into consideration sales through agents, ORIL only recognizes a portion of the cost of these agents. This decision assumes that the sales through agents must be made at much lower levels, even though these private agents charge commissions from the processing plants. ORIL has not provided any arguments for agents to accept lower commissions or to increase personnel (and personnel costs) so as to avoid depending on these agents.

On the other hand, ORIL does not either consider adequately the value of net equity. ORIL calculates net income of the processors based on costs and income and then divides net income by net equity to obtain the return on net equity. By doing this, the value of equity in the processors' books has been consistently underestimated while overestimating the return that ORIL states it permits.

Another methodological error committed by ORIL is that it has ignored the UHT milk segment and has assumed that every year the volume of fresh milk sales will be the same as the previous year, above all that at the time of the hearings, ORIL had information on the volume for the first half of the year. Thus, ORIL estimates a fresh milk margin using a higher than expected volume. In view of the fact that sales have been decreasing, fresh milk processors have not been able to obtain the expected income, since when the expected volume is more than the observed volume, income requirements are calculated with a larger denominator, which results in a lower approved margin.

In conclusion, ORIL ignores several cost items while not following appropriate regulatory practices. ORIL does not determine the rate of return in the way regulatory agencies in other jurisdictions do and it penalizes processors by reducing net equity as a result of the accumulation of losses. Furthermore, the calculation of the permitted margin is lower than that would be determined through appropriate regulatory practices, since historical volumes are used in the calculation of the margin, even when the trends show that the volumes have been consistently falling in recent years.

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NERA Economic Consulting

Applied Research Inc.

VI. Calculation of the Margin

Figure 2 presents the results of the calculation of the processors' margin, which has a value of 37.6 cents per quart of fresh milk. The figure first shows the parameters that were applied, followed by each one of the components of the income requirements and the estimated income requirements, and finally the calculation of the processors' margin.

Figure 2: Results of the Calculation of the Processors' Margin, January-December 2004

<i>Parameters</i>		
Income tax	(a)	3.90%
After-tax rate of return	(b)	14.36%
<i>Components of the Income Requirements</i>		
Costs (\$)	(c)	88,976,558
Net equity (\$)	(d)	70,356,887
Pre-tax rate of return	(e)=(b)/[1-(a)]	14.94%
<i>Estimated Income Requirements</i>		
Return on net equity (annual) (\$)	(f)=(e)*(d)	10,513,266
Regulatory accrual (\$)	(g)	-
Income Requirements (\$)	(h)=(c)+(f)+(g)	99,489,824
<i>Estimated Processors' Margin</i>		
Volume (quarts)	(i)	264,574,384
Processors' Margin (cents/quart)	(j)=(h)/(i)*100	37.60

The following are the steps used to calculate the processors' margin.

A. Estimated Income Requirements

Income requirements that were obtained from the sum of costs plus return on net equity amount to \$99,489,824.

Figure 3 shows the results of operations of processors for the 2004 calendar year. It can be seen that there is a consolidated operating loss of \$10,336,208 (3.83 cents per quart) of which \$5,933,352 pertain to Suiza Dairy and \$4,402,855 pertain to Tres Monjitas.

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Figure 3: Results of Operations of Processors January-December 2004

	Suiza Dairy	Tres Monjitas		Consolidated
	Total	Total	Total	Per quart
	----- \$ -----	----- \$ -----	----- \$ -----	- ¢/quart -
Sales				
Cartons	10,959,865			
Plastic Containers	145,689,026			
Total	156,648,891	80,125,435	236,774,326	87.65
Cost of Ingredients	105,202,607	52,931,369	158,133,976	58.54
Gross Margin	51,446,284	27,194,066	78,640,350	29.11
Expenses of Operations	57,379,636	31,596,922	88,976,558	32.94
Operating Profit (Loss)	(5,933,352)	(4,402,855)	(10,336,208)	(3.83)

1. Costs

Costs during 2004 were \$88,976,558 (32.94 cents per quart). This includes operating expenses, depreciation, and administrative costs. It should be noted that financial expenses are zero during the period, since these companies do not have long-term debt. Taxes are not included in costs since these are recovered through the rate of return.

It should also be noted that in an effort to reduce costs in both companies, they both reduce the “Promotions and Discount” and “Exclusivity/Slotting” items for a total of \$5.4 million in the 2003 calendar year to \$5.2 million in 2004. For Tres Monjitas the depreciation item greatly decreased because the plant became fully depreciated.

In each price review, ORIL evaluates the costs of the processing plants and unjustifiably ignores costs that should be included in the calculation of the margin. These adjustments made by ORIL are not included in the calculation of the margin presented in this report. With regard to adequate adjustments that should be introduced, automatic adjustment mechanisms will be included later so that margins may be adjusted for changes in the cost of resin, fuel, electricity, and water.

With regard to the prices that were approved as of May 5, 2005, ORIL made a series of incorrect adjustments in Appendix B of its Administrative Order that do not apply to this rate revision for the following reasons:

- Costs of Plastic Containers and Caps: the information submitted by the processors are for market prices or costs of production;
- Shrinkage: it was determined that the level of shrinkage for fresh milk processors is comparable to that of plants in US, based on a series of conversations with management of both companies;

- Professional Services: the level of operator fees included by Tres Monjitas covers the costs of services provided by their holding company, which in the case of Suiza Dairy are performed by their own staff; and
- Sales Discounts: the costs for this category for both companies is below the level established by ORIL for the last rate review.

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Figure 4 presents itemized operating expenses of the processors for 2004.

Figure 4: Operating Expenses of the Processors, January-December 2004

	Suiza Dairy	Tres Monjitas		Consolidated	
	Total	Total	Total	Per quart % of expenses	
	----- \$ -----	----- \$ -----	----- \$ -----	- ¢/quart -	-----%-----
Operating Expenses					
1-Commissions	4,205,925	2,261,825	6,467,750	2.39	7.27%
2-Salaries and Wages					
a- General Employees	10,158,293	5,909,011	16,067,304	5.95	18.06%
b-Se [sic] Services Employees	-	106,102	106,102	0.04	0.12%
c-IT Employees	211,426	-	211,426	0.08	0.24%
3-Payroll Taxes	2,137,992	1,224,257	3,362,249	1.24	3.78%
4- Fringe Benefits					
a-Health Insurance	2,124,669	1,287,423	3,412,092	1.26	3.83%
b-Bonuses	617,030	613,233	1,230,263	0.46	1.38%
c-Vacation/Sick Leave	1,720,768	1,048,937	2,769,705	1.03	3.11%
d-Profit-sharing Plan	216,333	-	216,333	0.08	0.24%
e-Others	738,963	309,349	1,048,312	0.39	1.18%
5-Packaging					
a-Cartons and Bladders	754,323	300,559	1,054,882	0.39	1.19%
b-Plastic	11,016,780	5,873,321	16,890,101	6.65	18.98%
c-Crates	688,784	296,990	985,774	0.36	1.11%
6-Fuel	129,513	88,139	217,652	0.08	0.24%
7-Gasoline and Diesel	1,032,077	715,631	1,747,708	0.65	1.96%
8-Rubber Bands and Tubes	320,701	-	320,701	0.12	0.36%
9-Electricity and Energy	1,978,232	633,870	2,612,102	0.97	2.94%
10-Water	194,729	110,128	304,857	0.11	0.34%
11-Materials					
a-Cleaning	446,526	216,618	663,144	0.25	0.75%
b-Laboratory	108,690	59,095	167,785	0.06	0.19%
c-Office and Others	415,866	165,986	581,852	0.22	0.65%
12-Vehicle Expenses					
a-Leases	(3,800)	-	(3,800)	(0.00)	0.00%
b-Depreciation	1,038,648	767,054	1,805,702	0.67	2.03%
c-Repairs	958,733	361,993	1,320,726	0.49	1.48%
d-Licenses	161,501	56,633	218,134	0.08	0.25%
e-Insurance	2,228	-	2,228	0.00	0.00%
13- Machinery and Equipment Expenses					
a-Lease	3,178	6,371	9,549	0.00	0.01%
b-Depreciation	1,947,658	573,309	2,520,967	0.93	2.83%
c-Repairs and Maintenance	1,992,229	311,182	2,303,411	0.85	2.59%
14-Shrinkage and Deterioration	2,157,128	890,995	3,048,123	1.13	3.43%
15-Taxes	-	-	-	-	-
16-Franchise Taxes	-	-	-	-	-
17-Other Insurance	921,864	525,832	1,447,696	0.54	1.63%
18- Professional Fees	954,819	2,214,093	3,168,912	1.17	3.56%
19-Communications	302,167	55,218	357,385	0.13	0.40%
20-Building Expenses					
a-Rent	(8,838)	294,160	285,322	0.11	0.32%
b-Depreciation	760,365	437,050	1,197,415	0.44	1.35%
21-Security Guard Services	734,452	175,133	909,585	0.34	1.02%
22-Bad Accounts	234,442	148,173	382,615	0.14	0.43%
23-Financing Expenses					
a-Working Capital	185,604	-	185,604	0.07	0.21%
b-Debt	-	-	-	-	-
24-Other Expenses					
a-Various	388,589	368,436	757,024	0.28	0.85%
b-Surplus (Penalty)	137,928	254,930	392,858	0.15	0.44%
c-Marketing	855,434	267,485	1,122,919	0.42	1.26%
d-Collection of Surplus	762,555	462,664	1,225,219	0.45	1.38%
e-Against Collection Account	(762,555)	(462,664)	(1,225,219)	(0.45)	-1.38%
f-Tolls	167,529	109,738	277,267	0.10	0.31%
25- Deferred Amortization	-	-	-	-	-
26- Extraordinary Expenses	-	-	-	-	-
27- Discounts in Sales					
a>Returns	877,439	782,239	1,659,678	0.61	1.87%

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b-Promotions and Discounts	2,610,772	1,453,419	4,064,191	1.50	4.57%
c-Exclusivity/Slotting	781,948	323,003	1,104,951	0.41	1.24%
Operating Expenses	57,379,636	31,596,922	88,976,558	32.94	

2. Net Equity

Net equity is \$70,356,887²⁰ and applying an after-tax profitability rate yields an ROE of \$10,513,266 (3.97 cents per quart).

Figure 5 presents the 2004 balance sheets for the processors from which net equity was obtained.

Figure 5: Processors' Balance Sheets, December 2004

	Suiza Dairy	Tres Monjitas	Consolidated
	----- \$ -----		
ASSETS			
Current Assets			
Cash in Hand and Banks	83,177	(3,029,131)	(2,945,954)
Receivables – Net	12,069,072	7,017,165	19,086,236
Inventory	2,588,172	1,300,052	3,888,223
Prepaid Expenses	354,215	732,269	1,086,484
Total Current Assets	15,094,635	6,020,355	21,114,990
Noncurrent Assets			
Fixed Assets, Net	37,410,055	7,318,479	44,728,534
Regulatory Accrual	24,633,855	15,941,762	40,575,617
Other Assets and Deferred Charges	-	960,350	960,350
Total Noncurrent Asset	62,043,910	24,220,591	86,264,501
TOTAL ASSETS	77,138,545	30,240,946	107,379,491
LIABILITIES AND NET EQUITY			
Current Liabilities			
Loans Payable	5,760,000	-	5,760,000
Accounts Payable	19,320,098	10,013,439	29,333,537
Accrued Expenses Payable	-	1,929,066	1,929,066
Total Current Liabilities	25,080,098	11,942,505	37,022,604
Noncurrent Liabilities			
Long-term Debt	-	-	-
Total Noncurrent Liabilities	-	-	-
Net Equity			
Capital Shares	867	16,508,686	16,509,553
Additional Paid-in Capital	39,386,504	-	39,386,504
Capital in Excess of Par	-	22,999	22,999
Operating Surplus			
Regulatory	24,633,855	15,941,762	40,575,617
Books	(11,962,780)	(14,175,007)	(26,137,787)
Total Operating Surplus	12,671,075	1,766,756	14,437,831
Total Net Equity	52,058,446	18,298,441	70,356,887
TOTAL LIABILITIES AND NET EQUITY	77,138,544	30,240,946	107,379,490

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- 20 A significant change that is introduced in the previous version of this report and that differentiates it from versions previously submitted to the ORIL is that in the case of Suiza Dairy there is a loan from Citibank that accrues interest and is included in the accounts payable.

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As can be seen, the amount of earnings for estimating equity includes those accumulated in 2002, 2003, and 2004. This amount should be revised as suggested in **Section III.C** to include the historical balance at the estimated rate based on Results of Operations and not taking into account extraordinary situations.

3. Rate of Profitability

According to the results of the study submitted by the expert witness in rates of return, Wayne P. Olson,²¹ the after-tax rate of return for the processors was 14.36%. Likewise, the pre-tax rate of profitability was 14.94% (using a rate of 39 % for the 10 % that is taxable).

B. Estimated Processor Margin

As was explained in **Section III.B**, the processors' margin is a result of dividing income requirements by sales volume. Sales volume for the period was 270,139,928 quarts of milk, so that sales volume is estimated at 264,574,384 quarts of milk with a reduction of 2.06% as explained in **Section III.B**. Thus, the processor margin is 37.6 cents per quart.

Figure 6 presents the processors' sales volume for 2004 to be used in calculating the processors' margin.

Figure 6: Processors' Sales Volumes, January-December 2004

	<u>Suiza Dairy</u>	<u>Tres Monjitas</u>	<u>Consolidated</u>
	----- quarts -----		
Cartons	12,092,274	N/A	N/A
Plastic Containers	<u>165,628,372</u>	<u>N/A</u>	<u>N/A</u>
Total	177,720,646	92,419,282	270,139,928
Projected (2.06%)			264,574,384

21 Affidavit of Wayne P. Olson, CFA, CPA, on behalf of Suiza Dairy Corp., August 26, 2003.

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Appendix A: Unequal Competition with UHT milk

One of the most visible changes in the dairy industry in Puerto Rico is the massive expansion of the UHT milk market in recent years. The purpose of this appendix is to argue that this change has an enormous effect on the milk products market of the Island, an effect that unfortunately has been very negative, both for the dairy farmers and the fresh milk producers. To this effect, **Section A** first presents a brief summary of the regulation of milk production in Puerto Rico, since the regulator defines the cost of the milk input for processors. **Section B** covers regulation and competition in the processed fluid milk market. First of all, an analysis is provided specifically of the unequal competition that exists between fresh milk and UHT milk and then a review is offered of recent market experience, noting the existing weaknesses. **Section C** discusses the foreseeable consequences of maintaining the current situation of the fluid milk market. Basically, an economic model is used to quantify the economic effects of this unequal competition, under different scenarios of substitution. Finally, **Section D** presents the principal conclusions and recommendations.

A. Regulation of Milk Production in Puerto Rico

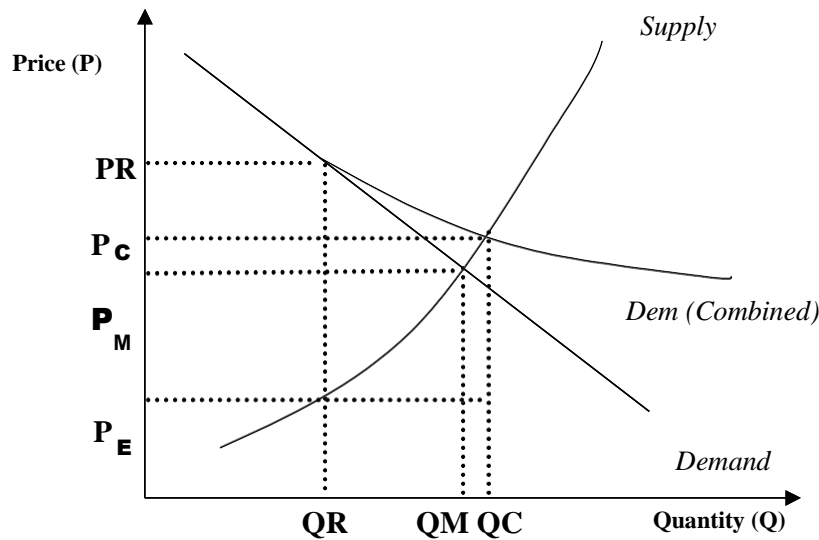
One of the principal functions of the regulation of milk production is the determination of prices. Price regulation affects different stages of the supply chain. This includes setting minimum prices for the producer and maximum prices for resale, at the retail and wholesale levels. At the production stage, minimum prices are set for retained milk under quota and surplus milk. Current prices are: \$0.66125 per quart for retained milk and \$0.10 for surplus milk.

Price regulation operates under the principle that the producer receives a combined (weighted) price of the retained milk and surplus milk. The price received by an individual dairy farm does not depend on the composition of its own sales, but rather is set based on the relative share of the two kinds of milk in the market. In any case, the producer is assured a given minimum annual price, that currently is set at \$0.55 per quart.

Graph 2 shows how prices are set at the level of the producer. Absent a regulatory mechanism, the price of milk is established (as in any other market) by the intersection of supply and demand, so that a competitive price (P_c) is obtained corresponding to a competitive equilibrium volume Q_c , whereas regulation establishes a minimum price for retained milk equal to P_R ($=\$0.66125$), that results in a volume of retained milk equivalent to Q_R . Any volume of surplus milk has a much lower price P_E ($=\$0.10$), while the producer receives a combined (weighted) price for both kinds of milk. Thus, producers receive a slightly higher demand curve (an effect of weighted minimum prices) which translate into a somewhat larger supply than what there would be in an unregulated market. For the same reason, the regulated price is higher than the uniform market price that would exist in the absence of regulation. The corollary of this higher price is a greater production of milk, which raises the security of the supply, and that is precisely one of

the objectives of regulation. If the combined price of milk (P_c) does not reach the established minimum level (\$0.55), Indulac must make the necessary contributions to ensure the dairy farms receive the minimum price.

Graph 2: Price of Milk for Producer



Note:

R = retained; C = combined; M = market; E = surplus

B. Regulation and Competition in the Processed Fresh Milk Market

Unlike many other places in which the regulation of fluid milk prices only applies to the production stage, in Puerto Rico regulation also includes the processing and distribution stages. In particular, the ORIL sets maximum prices for the sale of fresh milk at both the wholesale and retail levels. Thus, fresh milk processors are faced with regulated prices both for purchasing the supply from dairy farms and for selling the processed product.

Fresh milk competes with long-lasting UHT milk (Ultra High Temperature) in the fluid milk market. Indulac buys surplus milk from processors, for which dairy farmers receive from the processors a price of \$0.10 per quart, and uses this to manufacture milk products, which include UHT milk. This kind of milk is also imported, basically from the United States and Canada, but Indulac is the main supplier in this market.

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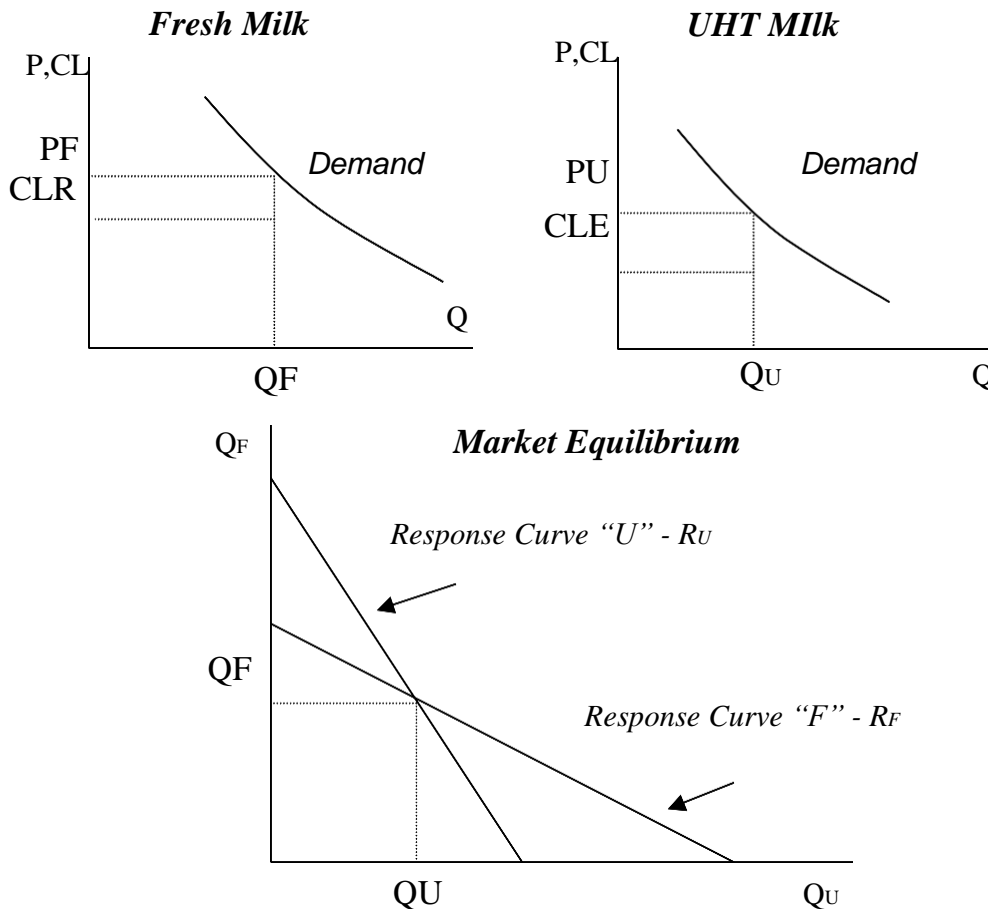
1. Unequal Competition between Fresh Milk and UHT Milk

As a matter of fact, UHT milk is a good that substitutes fresh milk, but its sales price is not subject to regulation. In August of 2004 this kind of milk was sold at a wholesale price of around \$0.83 per quart. Given that it is a substitute, and the asymmetric manner in which the price of the two kinds of fluid milk is regulated, the UHT market (unregulated) has the capacity to strongly affect the size and operation of the fresh milk market (regulated).

Graph 3 shows the interaction between the fresh milk and UHT milk markets. Consumers have a certain preference for the fluid milk, which with regard to substitute products maybe directed towards fresh milk or UHT milk. One of the basic factors that determines the market share of the two kinds of milk are its prices, which depend on their production costs. The upper part of **Graph 3** shows a equilibrium situation in both markets, indicating respective prices (P), costs of the milk input (CL) and the amount of the demand (Q). In the case of fresh milk, the price (P_F) is regulated as is the cost of retained milk (CL_R), that is its principal input. On the other hand, the cost of the surplus milk (CL_E) used to manufacture the UHT product is also regulated, but at a significantly lower price, while the sales price of UHT milk is unregulated. The lower part of this figure shows how equilibrium is established in the fluid milk market, based on “response curves” for both kinds of producers.²² There is only one equilibrium point at which fresh milk (F) and UHT milk (U) producers' curves meet, thereby defining the supply of both kinds of milk.

22 Essentially, each curve represents the amount of milk that each kind of producer (fresh milk or UHT) can supply in the market given the supply level of the other kind of producer. Given that the demand for fluid milk is limited, an increased supply from one kind of producer necessarily implies a lower supply of the substitute product.

Graph 3: Determination of Fresh Milk Prices



One of the recent developments in the UHT market is the relative lowering of the price of this kind of milk, which has been made possible by the low price of surplus milk and the influx of imported UHT at very competitive prices. **Graph 4** illustrates the case of a modification in the market share of UHT milk as the cost of the milk inputs for producing it has lowered. The lower part of the graph shows that as cost of the input has lowered, the response curve of the UHT offeror moves to the right. For the same level of prices, the offeror has the capacity to supply a larger amount of UHT milk. As the response curve R_U moves to the right, consumption favors UHT milk, so that it obtains a larger share. The upper part of the graph shows the same result. Basically, as the cost of the supply of UHT milk is reduced, its price falls, which raises consumption in that market. Simultaneously, there is an expansion of the market as some consumers of fresh milk decide to consume UHT milk.

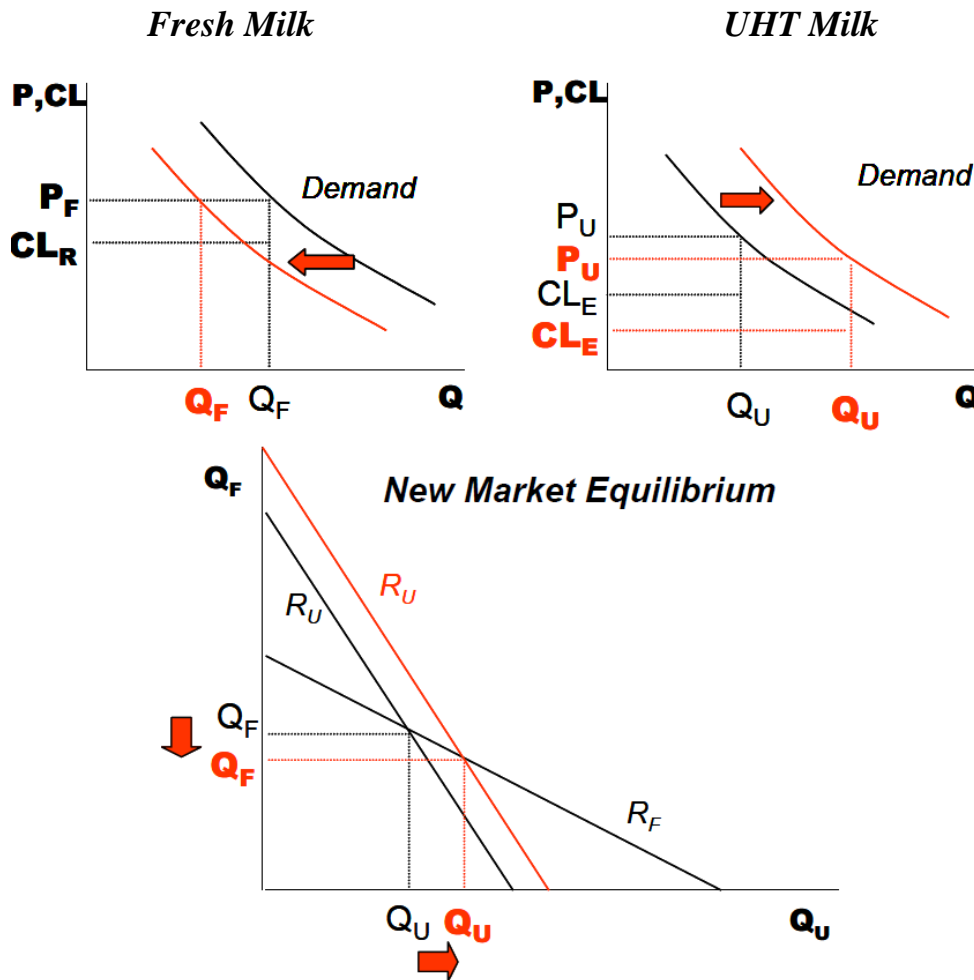
Thus, the cost advantage of UHT milk allows it to gain market share. This advantage is due to the fact that Indulac has access to milk input at a very low price (just \$0.10) and that the product is imported at extremely favorable prices,

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which has led agents in the industry to suspect that there is dumping and/or other predatory commercial practices. In fact, fresh milk producers do not have the same advantages and price flexibility as UHT milk vendors, since their milk input costs much more and their sale prices are fully regulated. Therefore, this asymmetry in the regulation of prices, along with the huge difference in production costs for both kinds of milk, implies the development of unequal competition to the detriment of fresh milk.

Graph 4: Change in Market Share of UHT Milk



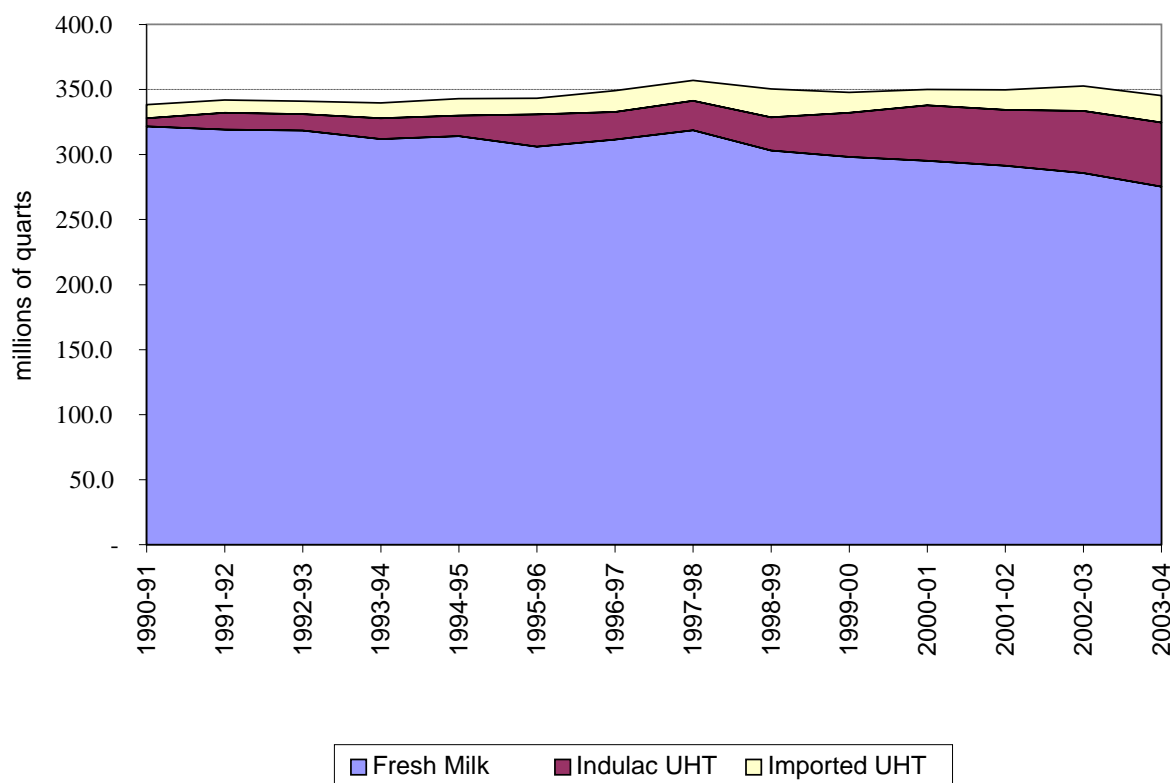
What is the result of this unequal competition? First of all, strong growth is seen in the market share of UHT milk. In the fiscal year ending in 1995, the market share of UHT milk in the fluid milk market was 8.4 percent, in the fiscal year ending in 2000 this percentage reached 14.2 percent, while in the fiscal year ending

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in 2004 it reached 20.3 percent.²³ **Graph 5** clearly shows this process. The fluid milk market has been fluctuating around 350 million quarts a year since the mid-1990s. However, during this period the consumption of fresh milk has clearly declined, just as consumption of UHT milk has been growing, particularly the UHT milk produced by Indulac. In other word, while the fluid milk market remains relatively stable, the distribution of market share has changed in favor of the consumption of UHT milk and to the detriment of the consumption of fresh milk.

Graph 5: Asymmetry in the Sales of Fresh Milk and UHT Milk (Indulac and Imported), Fiscal Years 1989-90 to 2003-04



This marked change in market composition is not the only effect of the unequal competition of UHT milk. According to the current regulatory scheme, fresh milk producers make contributions that at the end of the day benefit the production of UHT milk, precisely the good that substitutes fresh milk. In turn, the processors

23 ORIL (1993-2004). “Annual Fiscal Year Report” Dairy Industry Regulatory Office. Department of Agriculture, Puerto Rico, July 1993-2004.

receive \$0.015 per quart for transportation, but in reality this costs \$0.02 per quart, so they absorb the difference, as reported by the processors. **Figure 7** shows the contribution of the processors in the case of transaction volumes that are not very far from what has been observed recently. It can be seen that because of the price differences between retained milk and surplus milk, processors pay \$ 0.09354/quart above the real cost of the milk at market price, while Indulac pays \$ 0.46771 below the real market price. Evidently, this constitutes a transfer by the processors to Indulac that makes it possible to produce UHT milk with an input price of only \$0.10. Given the volumes used in this example, this represents a total transfer of \$28 million to Indulac.

Figure 7: Contribution of the Processors to UHT Milk Supply

	Volume	\$/Quart	\$
Retained	300,000,000	0.64125	192,375,000
Surplus	60,000,000	0.10000	6,000,000
Total	360,000,000	0.55104	198,375,000
Market Costs			
Input Delivered to Indulac	60,000,000	0.55104	33,062,500
Input Used by Processors	300,000,000	0.55104	165,312,500
Real Costs			
Indulac	60,000,000	0.10000	6,000,000
Processors	300,000,000	0.64125	192,375,000
Reduction of Supply Costs			
Received by Indulac			
Market Cost	60,000,000	0.55104	33,062,500
Real Cost	60,000,000	0.10000	6,000,000
Processor Assistance	60,000,000	0.45104	27,062,500
Paid by the Processors			
Real Cost	300,000,000	0.64125	192,375,000
Market Cost	300,000,000	0.55104	165,312,500
Assistance to Indulac	300,000,000	0.09021	27,062,500

Another extremely important aspect is that the growth of the UHT milk market may lead to dairy farms ending with a relatively lower aggregate value. This is because as the amount of surplus milk increases (which is principally used for the production of UHT milk) the weighted price received by the dairy farmer is reduced. If 100 percent of the milk produced is retained milk, then the producer would have an income \$0.64125 per quart, an amount that will be decreasing as the volume of surplus milk grows.²⁴ **Figure 8** shows a case in which there is a reduction of surplus milk (30 million quarts) without a change in the total volume of the milk produced. It can be seen that the producer obtains additional income of \$16.2 million. Therefore, it does not favor the dairy farmers either that there be an expansion of the UHT milk market fed by an increasingly larger milk surplus

²⁴ Although the price paid by the processors is \$0.66125 per quart of retained milk, the dairy farmers only receive \$0.64125, since of the \$0.66125, \$0.015 is to cover transportation costs and \$0.005 is assigned to the FFIL.

On the contrary, dairy farmers are benefited by very low levels of surplus milk. In fact, the original purpose of the regulation was that the surpluses be only a transitory event, and not that they should become something so significant and recurrent as has happened in the most recent period.

Figure 8: Impact of UHT Milk on Dairy Farm Income

	Volume	\$/Quart	\$
UHT Milk			
Retained	300,000,000	0.64125	192,375,000
Surplus	60,000,000	0.10000	6,000,000
Total	360,000,000	0.55104	198,375,000
UHT Milk at a Higher Price than Fresh Milk			
Retained	330,000,000	0.64125	211,612,500
Surplus	30,000,000	0.10000	3,000,000
Total	360,000,000	0.59615	214,612,500
Additional Income for Dairy Farmers	360,000,000	0.04510	16,237,500

Fresh milk producers operate essentially with an administered margin because of the combination of minimum prices (purchase price) and maximum prices (sales price) of milk to which they are subject. In contrast, Indulac has more commercial flexibility given that the price of UHT milk is not regulated and the price of the milk input is extremely low. In summary, fresh milk processors are in no condition to compete with UHT milk on equal terms for three basic reasons:

- Indulac receives the principal input at a very advantageous price because of the transfers from the processors that allows for covering the gap with the real cost;
- Discounts given by the processors were not recognized as costs by ORIL; and
- Imported UHT milk prices are extremely low, obviously lower than those on the Continent, which suggests the possibility of commercial dumping or other predatory measures.

The industry as a whole will benefit from a sound and thriving fresh milk market instead of relying on a growing UHT milk market.

C. Foreseeable Consequences of the Current Situation of the Fresh Milk Market

If the current price regulation is maintained and the artificial expansion of the UHT market continues, it is foreseeable that the situation of the industry will worsen to the point of reaching a crisis. In fact, the most salient sign that there is a severe imbalance in the dairy industry

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is the persistence of the milk surpluses and the growing conversion ton UHT milk. Initially, milk surpluses were the result of a transitory divergence between supply and demand. Indulac was precisely created for the purpose of absorbing these surpluses through the manufacture of dairy products. By now, surplus processing has taken on a life of its own, since it has become a commercial activity whose main product (UHT) competes directly with fresh milk. This is how fresh milk is losing ground, contrary to one of the main objectives of regulation, which is to guarantee reasonable profits for all sectors that comprise the industry (producers and processors).

A market simulation was conducted in order to quantify the economic deterioration that will occur with the persistence of the current trend of substituting fluid milk. An economic model was used for this simulation that assumes the continuous substitution of fresh milk by UHT milk, following the recent trend of the fluid milk market. Thus, it was decided to project three possible scenarios for the next four fiscal years that represent different degrees of milk substitution:

- Accelerated substitution in which UHT milk increases its market share at the rate of 2.5% a year;
- Latent substitution (base), in which there is an annual increased share of 1.5%; and
- Slow substitution, with an annual increase in the market share of un 0.5%.

For purposes of the simulation, the economic model uses as a reference the situation of the industry in FY 2003-04. Working from that base year, the growth of a set of economic variables (volumes, prices, and costs of milk) is projected, taking onto account the conduct observed in the previous years (FY 1998—99 and after). It was assumed that several market factors affect the process of substitution of fresh milk, notably the aggressive price policy of UHT milk vendors (Indulac and importers). It was also assumed that there is a strong penetration of UHT milk through advertising and promotional campaigns (distribution of free samples and similar activities). The model does not specifically evaluate the role of each of these factors but rather directly considers their possible combined effect on the foreseeable development of the market share. The model allows for estimating the variation (annual and cumulative) of the processors' surplus, dairy farm income, and Indulac contributions to producers.

It was necessary to adopt a series of more specific assumptions to make the calculations in the model. The assumptions regarding milk volumes are:

- Totals for milk produced and consumed are obtained based on average annual growth rates;

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- It is assumed that imported UHT milk maintains a constant share of 4.69% of the market (consistent with historical conduct);
- The projected amount of UHT milk is calculated taking into account its percentage of the fluid milk total and the assumptions regarding changes in its market share;
- The volume of Indulac UHT milk is calculated by difference; and
- The volume of fresh milk is also calculated by difference (fluid milk less UHT milk), and the amounts assigned to Suiza Dairy and Tres Monjitas are obtained by assuming a historically-based fixed proportion (65.88% for Suiza Dairy and the remainder for Tres Monjitas).

Assumptions regarding milk production costs:

- Production costs have two components:
 1. Variable cost (which is assumed to be the same in terms of per unit cost for different levels of production) that includes the cost of raw milk as well as operation and maintenance expenses; and
 2. Fixed cost (that does not depend on production volume).
- Costs are expressed in unit values and these levels are adjusted based on their respective average annual rates of growth.

Lastly, the assumptions regarding milk prices are:

- The price obtained by dairy farmers is a result of the weighted price of retained milk (\$0.64125) and surplus milk (\$0.10). Therefore, the final price depends on the composition of the use of the milk;
- The dairy farmers' prices is subject to a floor of \$0.55, so that if the average price falls below this level, Indulac makes the necessary contributions to cover the difference; and
- The figures for processor prices and UHT milk prices are averages.

Graph 6 and **Figure 9** show the results of the model. In **Graph 6** it is worth noting that the results of FY 2005-06 show lower losses than for the previous fiscal year. This decrease in processors' losses is due to recent increases in milk prices. However, the price increase reduces the losses, but does not eliminate them, nor does it represent a solution for the processors' problem. The price increase simply decreases the losses of the industry in a limited period of time. In subsequent periods, losses will continue to increase little by little. In other words,

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the price increase does nothing more than provide temporary relief, prolonging the death throes of the industry.

Graph 6: Projected Losses of the Processing Plants

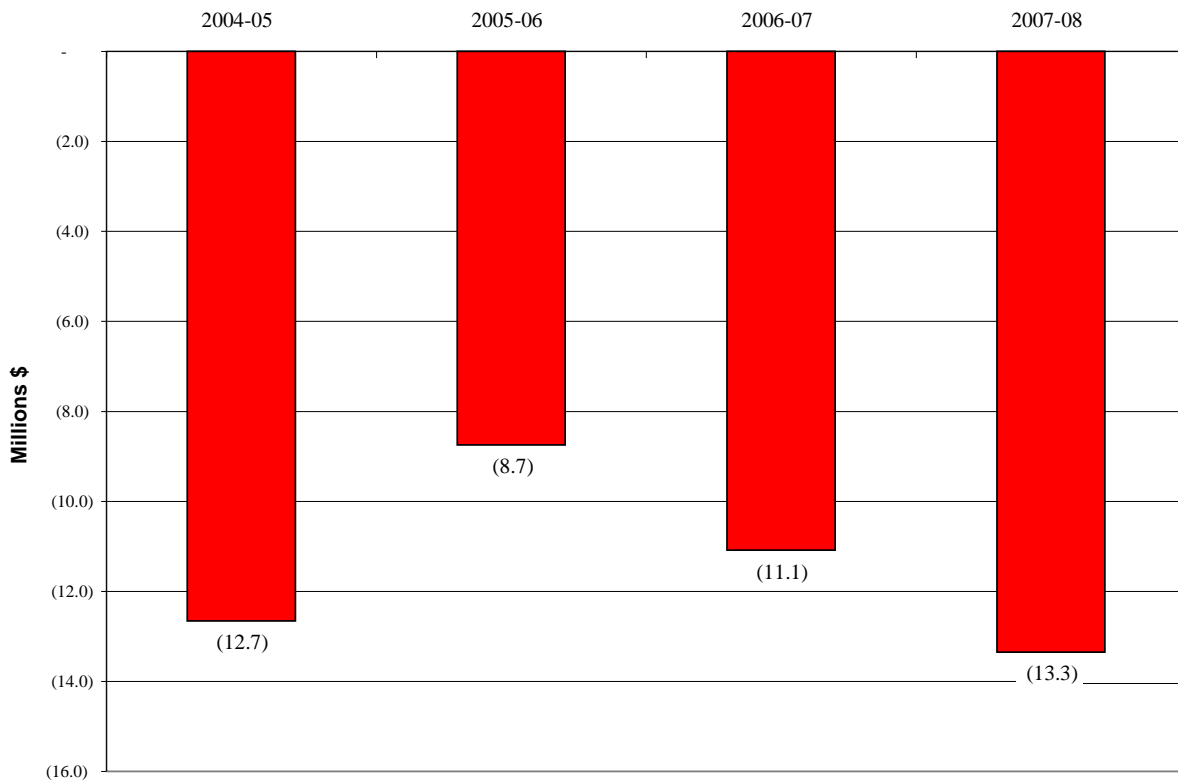


Figure 9 shows the results of the projection in greater detail. In the case of latent substitution (base) of fresh milk by UHT it can be seen that both Suiza Dairy and Tres Monjitas experience losses in each of the four years of the projection. In the case of Suiza Dairy, the accumulated losses during the entire period amount to \$29.3 million dollars, whereas the losses for Tres Monjitas amount to \$16.6 million dollars. Income of the dairy farmers was an accumulated amount of \$700.6 million dollars, but if the Indulac compensatory contributions are taken into account, income amounts to \$765.7 million dollars.

As can be seen, as the level of substitution of fresh milk by UHT milk increases, the income of the industry falls, since processors' losses increase. Likewise, as Indulac UHT milk gains market share with regard to fresh milk, Indulac must make higher contributions to reach the guaranteed minimum price for dairy farmers.

The results of the simulation model clearly suggest that if the trends that have been observed in recent years continue, the dairy industry will experience a substantial permanent

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downturn with respect to the current situation. Processors will continue to experience losses indefinitely with the current price structure. Finally, dairy farmers receive a relatively lower income because the surpluses above the minimum price are increasingly lower.

Figure 9: Economic Cost for Puerto Rico in the Base Case (thousands of dollars)

Scenario	Fiscal Years				Four Years
	2004-05	2005-06	2006-07	2007-08	2004-08
<i>Slow Substitution (0.5%)</i>					
Profit (Loss) Suiza Dairy	(7,624)	(5,136)	(6,193)	(7,545)	(26,498)
Profit (Loss) Tres Monjitas	(4,595)	(2,359)	(3,556)	(4,109)	(14,618)
Dairy Farm with Indulac Contributions	186,984	193,933	192,911	191,895	765,723
Dairy Farm Income without Indulac Contributions	178,907	181,727	180,044	178,371	719,049
Indulac Contributions	8,077	12,205	12,867	13,524	46,674
<i>Cumulative Results for the Industry</i>	174,764	186,438	183,163	180,241	724,606
<i>Latent Substitution (1.5%)</i>					
Profit (Loss) Suiza Dairy	(7,903)	(5,716)	(7,032)	(8,605)	(29,256)
Profit (Loss) Tres Monjitas	(4,755)	(3,029)	(4,050)	(4,745)	(16,579)
Dairy Farm with Indulac Contributions	186,984	193,933	192,911	191,895	765,723
Dairy Farm Income without Indulac Contributions	177,106	178,027	174,492	170,983	700,608
Indulac Contributions	9,878	15,906	18,419	20,913	65,115
<i>Cumulative Results for the Industry</i>	174,325	185,188	181,829	178,546	719,888
<i>Accelerated Substitution (2.5%)</i>					
Profit (Loss) Suiza Dairy	(8,182)	(6,016)	(7,871)	(9,664)	(31,734)
Profit (Loss) Tres Monjitas	(4,915)	(3,686)	(4,544)	(5,381)	(18,527)
Dairy Farm with Indulac Contributions	186,984	193,933	192,911	191,895	765,723
Dairy Farm Income without Indulac Contributions	175,305	174,327	168,941	163,594	682,167
Indulac Contributions	11,678	19,606	23,970	28,301	83,556
<i>Cumulative Results for the Industry</i>	173,886	184,230	180,496	176,850	715,462

D. Conclusions

The results in this Appendix clearly show that the notable expansion of the UHT milk market at the expense of the fresh milk market has a very toxic effect on the other segments of the industry. In particular, there is an artificial growth of UHT consumption to the detriment of fresh milk consumption. It should not be forgotten that one of the objectives of regulation is to encourage the consumption of fresh milk, since that is what ensures a higher income for producers and greater market stability. Given the current regulatory scheme, fresh milk producers do not have the same flexibility as UHT milk vendors (especially Indulac) so that there is a situation of unequal competition.

This situation requires an urgent solution, otherwise, the industry will continue to accumulate millions of dollars in losses. In this regard, it is considered that there are three kinds of measures that warrant serious evaluation:

1. The regulatory framework needs to be oriented at reducing and even eliminating milk surpluses, instead of keeping them or increasing them as has

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been happening. These surpluses are what allow for the production of UHT milk at an artificially low cost;

2. A good alignment of the prices of dairy products is required to avoid serious distortion of relative prices. One of the ways to do this is to establish a policy of minimum prices for dairy products, to prevent the use of predatory practices and that prices do not reflect true production costs; and
3. It is advisable that the market be opened up so that all processors (including Indulac) could compete in equal terms in the manufacture of any and all dairy products.

Appendix B: Formula for Income Requirements

Theoretically, income requirements consist of estimating the appropriate level of income that investors should receive for having invested capital in the processor market of the milk business. The calculation of income requirements is illustrated simply in the following formula:

$$RI_{ME} = GO_{ME} + TRP_{ME} \cdot BA_{ME}$$

where,

RI_{ME} : Income requirements of the company in the processor market
 GO_{ME} : Operating expenses of the company in the processor market
 TRP_{ME} : Weighted after-tax rate of return²⁵ of the company in the processor market
 BA_{ME} : Asset base of the company in the processor market

Operating expenses are simply uncanceled costs that the company incurs in providing the service. These include operating and maintenance expenses, administration expenses, and depreciation.

The rate of return is the weighted average cost of financing through debt instruments and the company's own capital (equity). For the company to establish income requirements that compensate investors from debt and equity capital (the opportunity cost of capital), all income taxes must be included in the calculation. This means that the rate of return may be calculated on an after-tax basis, adjusting the opportunity cost of capital upwards through the rate of equity capital to consider payment of income taxes. Multiplying the rate of return by the asset base allows the company to recover its cost of capital.²⁶

Finally, the asset base of is the capital stock of the company, net of accrued depreciation, plus working capital considered of utility for providing the service.

The extended formula for the theoretical income requirements for processors is:

$$RI_{ME} = OM_{ME} + CA_{ME} + D_{ME} + TRP_{ME} \cdot (AFN_{ME} + CT_{ME})$$

-
- 25 Mathematically, the cost of capital is composed of the different kinds of capital used by the company, such as debt and ordinary and common shares that are weighted on the basis of an appropriate capital structure. This is commonly called the Weighted Average Cost of Capital or WACC that is usually simplified by grouping the kinds of capital into two categories: debt and equity capital. Other examples of kinds of capital can be short-term debt and deferred taxes. If short-term debt has been converted into a permanent part of the company's financing, it should be included. Deferred taxes have been included in certain cases in particular in the US.
- 26 There is no unambiguous standard for establishing a fair rate of return. A good discussion of the relevant considerations (with regard to economic practices and legal precedents in the United States) is to be found in Kahn, Alfred E. (1988): "The Economics of Regulation", Vol. 1, (MIT Press: Cambridge, MA, Reprint), pp. 42-54.

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where,

R_{ME} : Income requirements of the company in the processor market
 OM_{ME} : Operating and maintenance costs of the company in the processor market
 CA_{ME} : Administrative costs of the company in the processor market
 D_{ME} : Depreciation of the company in the processor market
 I_{ME} : Taxes of the company in the processor market
 TR_{ME} : After-tax rate of return of the company in the processor market
 AFN_{ME} : Net fixed assets of the company in the processor market
 CT_{ME} : Working capital of the company in the processor market

As was seen before in the extended equation for income requirements, the asset base in the processor market (BA_{ME}) is defined as the value of the net fixed assets of the company in the processor market plus working capital of the company in the processor market (CT_{ME}) according to the following:

$$BA_{ME} = AFN_{ME} + CT_{ME}$$

However, the net asset base may be expressed in different equivalent ways depending on: (1) the availability of information and (2) accounting practices according to which the regulated price is being estimated. For Puerto Rico, the following equivalent alternative has been assumed:

$$BA_{ME} = PN_{ME} + DLP_{ME}$$

where,

BA_{ME} : Asset base of the company in the processor market
 PN_{ME} : Net equity of the company in the processor market
 DLP_{ME} : Long-term debt of the company in the processor market

The above lineal transformation is a result of performing the following algebraic operations. Working capital can be expressed in terms of current assets and current liabilities as follows:

$$CT_{ME} = AC_{ME} - PC_{ME}$$

where,

CT_{ME} : Working capital of the company in the processor market
 AC_{ME} : Current assets of the company in the processor market
 PC_{ME} : Current liabilities of the company in the processor market

In addition, given that that net fixed assets are equivalent to noncurrent assets, by replacing that, the following is obtained:

$$\begin{aligned}
 BA_{ME} &= ANC_{ME} + CT_{ME} \\
 &= ANC_{ME} + AC_{ME} - PC_{ME}
 \end{aligned}$$

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$$= A_{ME} - P_{CME}$$

where,

A_{CME} : Value of noncurrent assets of the company in the processor market
 A_{ME} : Value of the assets of the company in the processor market

Considering that long-term debt is the equivalent of noncurrent liabilities, the following is obtained:

$$B_{AME} - P_{NCME} = A_{ME} - P_{CME} - P_{NCME}$$

$$B_{AME} - P_{NCME} = A_{ME} - P_{ME}$$

$$B_{AME} - P_{NCME} = P_{NME}$$

$$B_{AME} = P_{NME} + P_{NCME}$$

$$B_{AME} = P_{NME} + DLP_{ME}$$

where,

B_{AME} : Asset Base of the company in the processor market
 A_{ME} : Value of the assets of the company in the processor market
 P_{CME} : Current liabilities of the company in the processor market
 P_{NCME} : Noncurrent liabilities of the company in the processor market
 P_{NME} : Net equity of the company in the processor market
 DLP_{ME} : Noncurrent assets of the company in the processor market

Therefore, the income requirements for the processor may be re-expressed in its extended form as follows:

$$RI_{ME} = OM_{ME} + C_{AME} + D_{ME} + TRP_{ME} \cdot (P_{NME} + DLP_{ME})$$

given that the rate of return for a company whose net fixed assets and working capital are being remunerated is the result of a cost weighted average of debt and equity capital as given in the following equation:

$$TRP_{ME} = (TR_{ME} \cdot P_{NME} + R_{ME} \cdot DLP_{ME}) / (P_{NME} + DLP_{ME})$$

Where,

R_{ME} : Cost of long-term debt.

$$RI_{ME} = OM_{ME} + C_{AME} + D_{ME} + R_{ME} \cdot DLP_{ME} + TR_{ME} \cdot P_{NME}$$

$$RI_{ME} = OM_{ME} + C_{AME} + D_{ME} + GF_{ME} + TR_{ME} \cdot P_{NME}$$

where,

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GF_{ME} : Financial expenses of the company in the processor market that are equivalent to R_{ME} • DLP_{ME}.

Finally, by simplification what is obtained is shown in **Section II.A.1**. It should be noted that net equity is equivalent to “Net Worth”.


$$RI_{ME} = GO_{ME} + TR_{ME} \cdot PN_{ME}$$

$$RI_{ME} = GO_{ME} + TR_{ME} \cdot NW_{ME}$$

where,

RI_{ME} : Income Requirements of the company in the processor market
GO_{ME} : Operating expenses of the company in the processor market
TR_{ME} : After-tax rate of return of the company in the processor market
NW_{ME} : Net worth of the company in the processor market

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Appendix C: Operator's Fees

Normally, Technical Assistance Agreements (TAA) are signed between a regulated company and a technical operator (which generally is a representative of the majority shareholder). TAAs have traditionally been one more element of the base rate of regulated companies in the case of the relationship between holding companies and subsidiaries in the US as well as companies that have been created through the process of privatization. In the latter case, governments have understood that doing this ensures technology transfer between an internationally recognized operator and the privatized company. Consequently, the users of the services offered by the company are benefitted by improvements in quality, security, and reliability in the service and eventually in terms of rates.

In addition, the technical operator that receives the fees under the TAA has the responsibility of operating the company and is accountable to the shareholders for any controllable event, which justifies the remuneration of its services.

Since technological development is a dynamic rather static process, technology transfer is a recurring process which is difficult to eliminate. To argue that the idea that up to now there has been "sufficient" technology transfer and cut the umbilical cord between the operator and the company is equivalent to denying the users of the service the right to receive the benefits of development in the company. The right that users have that companies that provide them with services recurrently provide them with better service in terms of cost (for example, more reliable and secure service) is something that regulators have understood. For this reason it is usual for technical assistance agreements to be included in the price-setting base.

In addition to being dynamic, the processes that have already been implemented by the operator are proprietary and therefore the companies that benefit from such must pay annual licensing fees to use them (like software licenses) under an operating agreement.

In the US, there are regulatory precedents that are consistent with the position of allowing TAAs (called Management Fees or Operator Fees). In particular, this embodies the principle of reciprocity. The fees are accounted for as a cost when technological assistance is received and as income when such is rendered. For example, the Massachusetts regulator, the DPU, establishes that intangible costs that benefit users for more than a year should be capitalized and included in the base rate.²⁷ This concept in the US has been standardized in the regulatory manual of accounts for electricity companies drafted by the NARUC (National Association of Regulatory Utility Commissioners).²⁸

In addition, the regulator in the State of Utah (Public Service Commission) established that the operator's fee is an intangible that should be included in the rate review as

27 Such costs include computer software and organizing costs. Re Bay State Gas Co., 139 PUR4th 3,31 (Mass. DPU, 1992).

28 Specifically, Account No 923 "External Employee Services," establishes that supervision fees and expenses paid under general administration services contracts should be included. NARUC (1976): "Uniform System of Accounts for Class A and B Electric Utilities 1976", National Association of Regulatory Utility Commissioners, pages 160-161.

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income for the holding company and as a cost for the subsidiary company. In particular, it established the following:

“For example, operator fees paid by a subsidiary cable company of a regulated telecommunications company was accounted for as a transfer of ‘acquired goodwill’; management has transferred the expertise of the company in technology, marketing, and administration which has been acquired broadly under funds paid by the users.”²⁹

29 Re US West Communications, Inc., 165 PUR4th 235, 278-79 (UTA PSC, 1995).

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Appendix D: Regulation of Fresh Milk Processor Margins

It is important to describe certain fundamental aspects established in the regulatory framework for fresh milk in Puerto Rico for establishing regulated prices. First of all, salient aspects of fresh milk processing and its regulatory framework will be summarized.

A. Fresh Milk Processing in Puerto Rico³⁰

The financial outlook of the processors is not promising. The total volume of sales has shown a decreasing trend in recent years. Sales volumes were 275.3 million quarts, 285.6 million quarts, and 291.3 million quarts in fiscal years 2004, 2003, and 2002, respectively. This was a decrease in sales volume of 5.49 % between July 2001 and June 2004.³¹

Similarly, a decreasing trend is observed in sales in dollars, which were \$240.0 million, \$250.0 million, and \$254.7 million in the fiscal years ending in 2004, 2003, and 2002 respectively. The decrease for the period was 5.77 %.³²

This decrease in the sales volume of fresh milk, largely caused by unequal competition with UHT milk, implies that the fixed costs of the processors will be covered with a lower level of income, thereby increasing operating losses year after year (as shown in **Graph 1**).

In contrast with the decrease in sales of fresh milk, sales of UHT milk have increased. For example, Indulac has reported a gradual increase in sales of 42.1

30 The following documents were consulted to draft this section (including, but not limited to such): Office of Agricultural Statistics (2003): "Estudio Económico Exhaustivo de la Industria Lechera de Puerto Rico Fase Agrícola, 1997," August; ORIL (2002): "Annual Fiscal Report 2001-2002", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July; and ORIL (2003): "Annual Fiscal Report 2002-2003", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July. "Annual Fiscal Report 2003-2004", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July. Table 23. page 52.

31 It can be seen that in recent years, the total volume of fresh milk sales for Suiza Dairy Corporation has decreased annually. While in the fiscal year that ended in June 2002 the company sold 190.3 million [sic], in June 2003 it sold 187.9 million, and in 2004 it sold 181.3 million. This is an average annual decrease in the demand of 2.39% and a total decrease of 4.74% during the period between July 2001 and June 2004. In the case of Tres Monjitas, it can be seen that the total of sales volume also has had a downward trend in recent years. While in FY 2004 sales of 93.97 million quarts of fresh milk were recorded, in 2003 the amount was 97.7 million, and in 2002 it was 100.9. This was a decrease of 6.91 % in the period overall.

32 The decrease in volume of Suiza Dairy sales is associated with a decrease in income. The company reported sales of \$166.4 million, \$164.5 million and \$157.4 million for the fiscal years that ended in June 2002, 2003, and 2004 respectively. This is an average annual decrease of 2.71% that shows a decrease in in the period between July 2001 and June 2004 of 5.38%. Tres Monjitas sales showed a decrease in the last year of 3.45 %. Sales were recorded at \$82.5 million, \$85.5 million, and \$88.3 million in the fiscal years that ended in 2004, 2003, and 2002, respectively.

million, 44.8 million, and 48.4 million quarts for calendar years 2001, 2002, and 2003, respectively. This represents sales of \$30 million, \$32 million, and \$35.4 million for calendar years 2001, 2002, and 2003, respectively.³³

This trend can be seen in analyzing the entire milk market in Puerto Rico. While the total of milk consumed (fresh milk plus UHT milk) in Puerto Rico has been relatively stable in recent years, fresh milk has decreased and UHT milk has increased. This can be seen in **Graph 5 (Appendix A)**.

Given that this trend of UHT milk will continue in subsequent years if there are no regulatory changes, operating losses of the processors will increase year to year, which will eventually lead to the insolvency (and eventual bankruptcy) of the processors.

B. Regulation of Fresh Milk

As in other places, Puerto Rico introduced the regulation of milk in the mid 1950s for the purpose of preventing the periodic crises being experienced by the industry. The primary objective was for the island to produce sufficient high quality milk to cover local demand at a reasonable price for consumers, while at the same time ensuring reasonable profits for all sectors of the industry (producers, processors, and distributors). The following entities were created with a view to achieving this objective:

- Dairy Industry Milk of Puerto Rico (INDULAC), 1955;
- Dairy Industry Regulatory Office (ORIL), 1956;
- Dairy Industry Development Fund (FFIL), 1957; and
- At the beginning of the 1980s, there was a severe crisis in the industry which gave rise to the creation of the Price Stabilization Fund (FEP) in 1985.

Partly due to the stability afforded by the regulatory framework, the dairy industry has developed to the point of becoming the main agricultural activity in Puerto Rico. However, deficiencies have arisen that have become increasingly marked, particularly with regard to price signals and their impact on the processing stage.

1. Regulatory Framework

One of the principal regulatory activities in the milk industry is the determination of prices, which affects different stages of the supply chain. This includes setting minimum prices for producers and maximum prices for resale, at the wholesale as well as the retail levels. In the production stage minimum prices are set for milk retained under quota and

33 ORIL (2003): "Annual Fiscal Year Report 2002- 2003", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July, Table 35, page 63.

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for surplus milk. Current prices are: \$0.66125 per quart for retained milk and \$0.10 for surplus milk .

Price regulation of prices operates under the principle that the producer receives a combined (weighted) price of retained milk and surplus milk. The price received by an individual dairy farm does not depend on the composition of its own sales, but rather is established base on the relative share of each kind of milk in the market as a whole. In any case, the producer is assured a given minimum price, which currently is fixed at \$0.55³⁴ per quart.

The contributions for this purpose, if needed, are provided by Indulac. In turn, the FFIL and the FEP receive contributions from the producers.³⁵ For subsequent stages, ORIL sets the fresh milk prices at the wholesale and retail levels taking into consideration the cost structure of the processors and distributors.

The processors (Suiza Dairy and Tres Monjitas), are subject to regulated prices for purchasing their input as well as for selling the processed product. Processors currently purchase milk from producers at a price of \$0.66125/quart. During 2004, the retained milk for pasteurization was purchased at \$0.62125/quart and sold at a price of approximately \$0.8718/quart.³⁶ On the other hand, Indulac purchases surplus milk from the processors at a price of \$0.10/quart, and the uses it to manufacture dairy products, including, among others, UHT milk. UHT milk is a substitute good for fresh milk, but its sales price is not regulated. During the 2003 calendar year UHT milk was sold at the wholesale level at approximately \$0.73 per quart.³⁷

Given the asymmetric way in which the price of fresh milk and UHT milk is regulated, the UHT unregulated market may strongly influence the volume and performance of the unregulated processors' market. Processors make a compulsory contribution to Indulac because they pay more than the average price for their input while Indulac receives that difference as a lower net price. Since UHT milk competes with fresh milk, Indulac (which holds a monopoly on production) receives a contribution from the processors to compete against themselves. This is unequal competition.

34 ORIL (2005): "Precio de Liquidación al Ganadero para la Quincena del 5 de Mayo al 18 de Mayo de 2005" Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, May, page 1.

35 Previously processors also contributed to FFIL.

36 ORIL (2004): "Annual Report Fiscal Year 2003- 2004", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July, page 12.

37 ORIL (2003): "Annual Fiscal Year Report 2003- 2004", Dairy Industry Regulatory Office, Department of Agriculture, Puerto Rico, July, Table 35. As reported by the processors the price of UHT milk at the wholesale level in August 2004 was \$0.83 per quart.

2. Components of the Regulated Price of Milk

There are four components of the regulated price: the price of the producer, the margin of the processor, the margin of the retail market, costs of transportation, and agents' commissions.³⁸ The following formula illustrates the relationship between the four components:

$$P = P_P + P_{ME} + P_{MM} + T\&C$$

where,

P : Price of milk for the final consumer;
P_P : Price received by the fresh milk producer;
P_{ME} : Margin of the fresh milk processor;
P_{MM} : Margin of the fresh milk retailer;
T&C : Costs of transportation and agents' commissions.

Each one of the components of the price of milk represents different markets that are affected by different risks and factors. Therefore, the calculation of each one of the components must be done separately to arrive at the final price of milk. This expert report focuses only on the P_{ME} estimate.

C. Unequal Competition with UHT milk

The notable expansion of the market of UHT milk in Puerto Rico has a very toxic effect on the other segments of the industry by essentially creating an artificial growth of UHT consumption to the detriment of consumption of fresh milk.

It should not be forgotten that one of the objectives of regulation is to encourage the consumption of fresh milk. It is this milk that ensures a higher income for producers and greater market stability. Given the current regulatory scheme, fresh milk producers do not have the same flexibility³⁹ as UHT milk vendors (especially Indulac) so that there is clearly a situation of unequal competition. A detailed analysis of this is presented in **Appendix A**.

If the current price regulation scheme and the artificial expansion of the UHT milk market continue, it is not difficult to predict the deterioration that will drive the industry to a crisis situation. In fact, the most salient symptom of the severe imbalance of the milk industry is the persistence of the surplus milk and the increasing transformation to UHT milk. Initially, milk surpluses were the result of a transitory divergence between supply and demand. Indulac was created precisely for the purpose of absorbing these surpluses through the manufacture of dairy products. By now, surplus processing has taken on a life of its own,


38 In the reports submitted in 2003 and 2004 it was explained that there are three components. At that time, the "costs of transportation and agents' commissions" component was included in some of the other prices and/or margins.

39 UHT milk vendors do not have regulated prices and receive their input at a lower price.

since it has become a commercial activity whose main product (UHT) competes directly with fresh milk.

This is how fresh milk is losing ground, contrary to one of the main objectives of regulation, which is to guarantee reasonable profits for all sectors that comprise the industry.

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Appendix E: Regulatory Theoretical Framework

The determination of regulated prices requires: 1) a series of general principles; 2) a set of clear of rules; and 3) several sets of accounting books.

A. Principles of Price Review

Regulatory practices that are based on the principles of prudence, utility, and transparency in the processes of price guarantee the transparency of the exercise. These principles help to resolve the differences of opinion regarding the kinds of investments may yield a return and the kinds of expenses that should be included in the calculation of prices. These three principles are the following:

- Prudence: only capital expenses are “prudent” purchases or constructions are allowed for inclusion in the “price base.”⁴⁰ Any amount of capital expenses in either of the following categories is excluded:
 - Unnecessary expenses; and
 - Fraudulent expenses.
- Utility: only expenses that provide an improvement or are capable of improving the product for consumers are allowed in the calculation of prices.⁴¹
- Transparency: submissions by regulated companies and the decisions made by regulators must be transparent.⁴²

When an asset or expense is not in accord with any of these principles, it is normally excluded from the calculation of prices. Some of the categories of assets that are usually excluded, among others, include: property used for speculation, property leased from other entities, investment in property used for other operations of the company, etc.

40 “If the [Regulatory] Agency finds that the costs have not bene prudent, it may legally decide that consumers should not share the financial burden of these costs,” Goodman, Leonard Saul (1998): “The Process of Ratemaking”, Public Utilities Reports, Inc., Volume II, page 819.

41 “Regardless of the valuation method used on the base rate, it has been widely held that investors have the right to a return only on the portion of the investment that has been used and is useful for the public service rendered,” Bluefield Water Works & Improvement Co. v. PSC of W.Va., 262 U.S. 679 (1923); Denver v. Denver Union Water Co., 246 U.S. 178 (1918); Wilcox v. Consol. Gas Co., 212 U.S. 19 (1909), submitted by Goodman, Leonard Saul (1998): “The Process of Ratemaking,” Public Utilities Reports, Inc., Volume II, pages 799-800.

42 See “Honest, Economic and Efficient Management,” Goodman, Leonard Saul (1998): “The Process of Ratemaking,” Public Utilities Reports, Inc., Volume II, Part 13, page 839.

With regard to the “cost-plus,” regulation of the rate of return, it must be borne in mind that the regulatory costs of the regulated company are passed on to consumers through prices. To avoid inflating these administrative costs, it is advisable to avoid unnecessary requests for information, to design simple procedures, to make detailed and reasonable requests for information and that the requests for information be of a moderate frequency, and to support the decision not to include the costs or assets of the regulated company for the calculation of prices in accordance with the principles of prudence and utility, based on precedent.

B. Rules for Calculating Regulated Prices

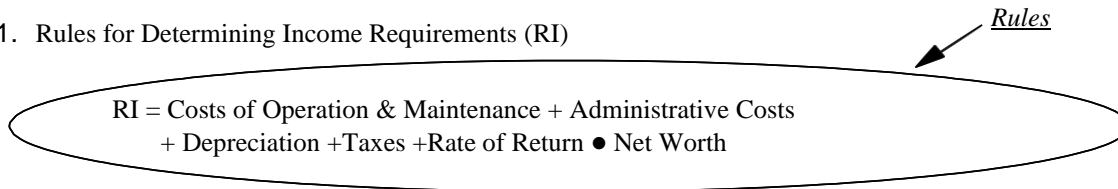
There are three sets of rules for determining regulated prices in any regulated industry, the interrelationship of which is illustrated in **Graph 7**, as explained below:

1. The first set of rules includes those that allow for determining income requirements. That is to say, the first aspect of the practical calculation of regulated prices consists of measuring the costs incurred by companies to provide their services. Companies should recover their operating expenses (including depreciation) plus a return on capital;
2. The second set of rules includes those that allow for designing and establishing regulated prices, that is to say, determining the appropriate price structure that will address income requirements; and
3. The third set of rules are those that determine future adjustments and modifications.

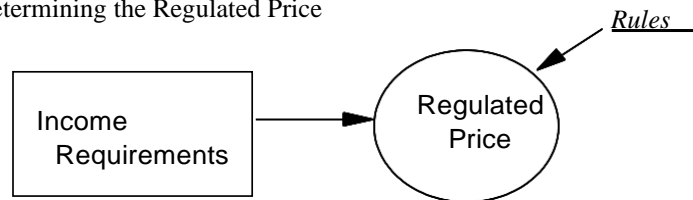
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Graph 7: Three Sets of Rules for Determining a Regulated Price

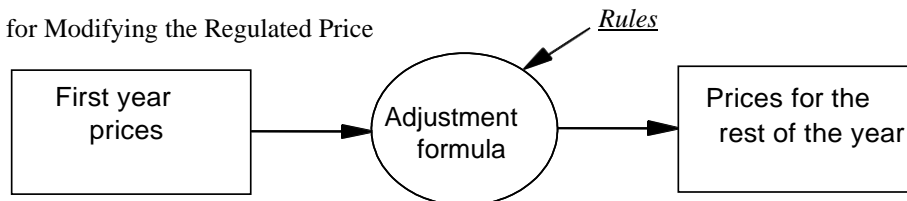
1. Rules for Determining Income Requirements (RI)



2. Rules for Determining the Regulated Price



3. Rules for Modifying the Regulated Price

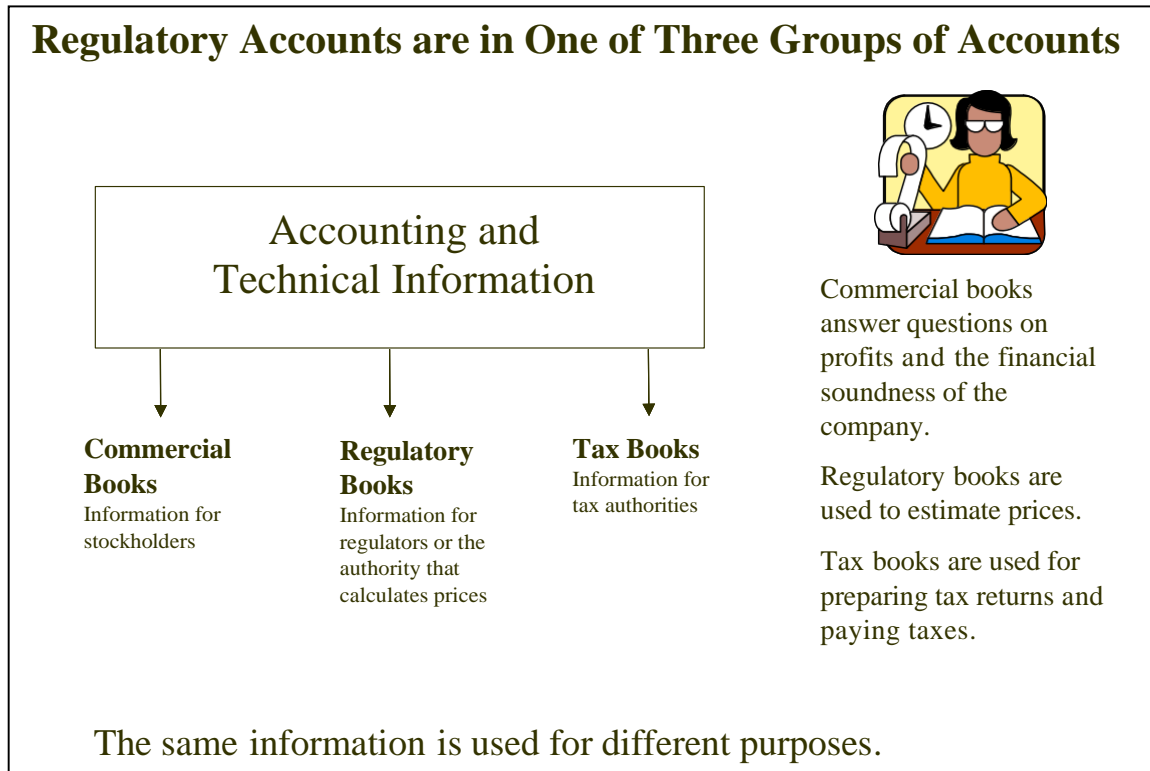


C. Regulatory Books

Structuring of regulated prices requires specific accounting and technical information that is not always found in traditional accounting books of a company. Traditional books are the commercial books that contain information addressed to shareholders and tax books for the tax authorities. For example, a regulator may require modifications in the incorporation of the assets or alternatives in the management of inflation to define the regulatory price that require modifications in the information in commercial and tax books. Therefore, all regulators find it necessary to require that regulated companies keep regulatory account books that consolidate information in the manner required to objectively define the regulated prices.

Graph 8 below describes the three sets of books used by a regulated company. Although they are three different sets of books, the information consolidated in each of them is the same.

Graph 8: Three Sets of Books



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